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MINIMUM STANDARDS BILL

The Minimum Standards Bill, S. B. 63, is now pending before the Texas Legislature. It received the unanimous endorsement of the House of Delegates of the State Medical Association of Texas, and it deserves the complete support of every physician in the state.

The Minimum Standards Bill is similar to laws now operating in seventeen other states and the District of Columbia. Its purpose, as its name implies, is to establish uniform minimum standards for all practitioners of the healing arts, regardless of their branch.

There are two specific requirements within the bill. The first is the requirement of minimum educational standards for all applicants. The second is the provision of an examination in six basic sciences before a lay examining board. Thus, before an applicant can begin the study of a healing art, he must have completed sixty semester hours of college courses which, at the time of completing them, would be acceptable at the University of Texas on a bachelor of arts degree or a bachelor of science degree. The basic sciences included in the purview of the bill are anatomy, bacteriology, chemistry, pathology, physiology and hygiene, and public health.

The examining board is to be composed of six members appointed by the governor for overlapping terms. The governor is required to select members because of their knowledge of the basic sciences, and each member is required to be a professor, an assistant or associate professor, or an instructor on the faculty of one of the accredited universities or colleges of Texas.

The proposed law is not a medical licensing act. A certificate of proficiency in the basic sciences issued by the board would not authorize the holder to practice the healing arts or any branch of them. It merely authorizes the holder to go before a licensing board to seek a license in the specific field in which he desires to practice.

A further provision of the proposed legislation is that it will exempt anyone who is now legally practicing a healing art as well as those practitioners who confine their practice strictly to those services authorized in their particular spheres under the present laws of

Texas. Persons offering ministration by prayer alone are likewise not affected.

The bill has one all-inclusive purpose: to protect the people of Texas from quackery and to safeguard Texas sickrooms from ignorance and lack of elementary knowledge. It is fair and impartial. It treats every branch of the healing arts alike. It is against no one.

In effect, it requires—as is now required of nearly every other trade or profession—minimum educational prerequisites and proof of proficiency by passing an examination in the basic sciences, which all branches of the healing arts, by their own statements, already teach. The examination is given by a completely impartial and competent board and grading is by number instead of name.

It would be difficult to suggest fairer or more practical legislation.

The Minimum Standards Bill has been referred to the Senate Committee on Public Health. Members of this committee are as follows: John J. Bell, Cuero, chairman; R. L. Proffer, Justin, vice-chairman; Pat Bullock, Colorado City; Dorsey B. Hardeman, San Angelo; Rogers Kelley, Edinburg; W. A. "Son" Shofner, Temple; Gus J. Strauss, Hallettsville; Walter Tynan, San Antonio; and R. A. Weinert, Seguin.

The House Committee on Public Health consists of the following members: Henry G. Lehman, Giddings, chairman; Edward P. Hughes, Newton, vice-chairman; A. Robin Henderson, Groesbeck; William S. Jameson, El Paso; Abraham Kazen, Jr., Laredo; Vernon McDaniel, Wichita Falls; John B. McDonald, Neches; Frank C. Oltorf, Jr., Marlin; James B. Pattison, Pattison; W. H. Rampy, Winters; Johnnie B. Rogers, Austin; Deno A. Tufares, Wichita Falls; Surry Turner, Gilmer; A. J. Vale, Rio Grande City; Wayne W. Wagonseller, Fruitland; Milton B. Walker, Beaumont; Tom Whiteside, Tyler; Doyle Willis, Fort Worth; Paul S. Wilson, Geneva; C. W. Woods, Crockett; and Lamar Zivley, Temple.

A list of the entire membership of the Fifty-First Legislature appears on page 107 of this JOURNAL.

Because the proposed law raises standards within the ranks of all those who practice a healing art and in so doing offers at least minimum protection to the people of Texas, it deserves the active and aggressive support of every citizen of the state.

OUR LIVING PAST PRESIDENTS

(EDITOR'S NOTE: This is the concluding portion of an editorial begun in the January issue of the JOURNAL, pages 4-9.)

DR. ALONZO A. ROSS, Lockhart, president 1933-1934, was born in Lockhart, January 22, 1868, and received the degree of doctor of medicine from Tulane University in 1896.

The express purpose of Dr. Ross's term of office was to bring about the organization of a medical society for each of the counties in Texas. In proceeding to carry out this objective Dr. Ross emphasized the qualities of the personalities in the early history of Texas medicine and showed the foresightedness of this group who petitioned the government of the Republic of Texas to establish a Medical Practice Act in August of 1835.

Dr. Ross encouraged every reputable doctor to be enrolled in the state organization and emphasized the necessity of pointing out his opportunities and obligations to his profession. He stressed the necessity of continuous education in medical fields and indicated the importance of well-planned and intelligent use of an adequate medical library as a means of assisting this educational procedure. Dr. Ross's administration engendered a closer understanding and appreciation of the works accomplished through the Woman's Auxiliary. His term of office closed with a serious consideration of problems in medical economics which would be of direct concern to members of the medical profession, the government of this nation, and the general public as a whole.

DR. SAMUEL E. THOMPSON, Kerrville, president 1934-1935, was born in Claiborne Parish, La., on May 24, 1871. He received his doctor of medicine degree from the Kentucky School of Medicine in 1904. Dr. Thompson's administration was extremely active and was concerned with many matters of state legislation and a continued program for improving the standards of health in this state. These consisted in part of tax exemptions for hospitals, a sanitary code, eugenic sterilization, hospital training schools for nurses, a Negro tuberculosis sanatorium, marriage license examinations, health regulation of migratory shows, and malaria control.

Dr. Thompson recommended cooperation with the State Board of Health and the State Board of Medical Examiners as established by the policy of the State Medical Association and that the Association continue to support the American Medical Association in its opposition to the socialization of medicine. He also recommended that a plan for emergency medical relief be endorsed and approved.

DR. JOHN H. BURLESON, San Antonio, president 1935-1936, was born near Austin on November 30, 1867. He received his doctor of medicine degree from Missouri Medical College (now merged with Washington University) in 1890. Interested in a thorough evaluation of medicine, Dr. Burleson made a close comparison of the progress in medical science and practice during his administration and the preceding years. Dr. Burleson emphasized the importance of the "personal touch" in the practice of medicine and indicated his concern for the welfare of all patients in matters of health and economics. He pointed out the dignity of the "family doctor" as he should be regarded in the light of medical history.

Dr. Burleson recommended that a program of lay education be presented through public welfare societies and that steps be taken to create boards of health composed entirely of doctors who would be free from political influence to assist in the control and prevention of diseases. He recommended that a tuberculosis campaign be conducted by the medical profession and pointed out that the death rate from tuberculosis in 1910 was "200 per 100,000." In this connection Dr. Burleson said that the most important factor in the prevention of tuberculosis is the well-located county and municipal sanatoriums where the indigent patient can and will be cared for.

DR. HOWARD RUSH DUDGEON, Waco, president 1936-1937, was born at Chamois, Mo., on November 21, 1873. He received his doctor of medicine degree from the Medical Branch of The University of Texas in 1899. Dr. Dudgeon's administration was characterized by the growing tendencies of state and federal government participation in medical fields, and he continuously pointed out that *private practice* of medicine had not failed. He emphasized the dangers of self-medication and pointed out that many laymen did not know what could be done for them by preventive and curative medicine.

Matters of interest in state legislation during Dr. Dudgeon's administration included a public welfare program as an emergency relief measure, dental legislation, commitment of the insane, consolidation of state departments, the sanitary code, the uniform narcotics bill, hospitalization of indigents, a barbiturate derivatives law, and sterilization of the unfit. National legislation of interest to the medical profession included the reorganization of governmental agencies, food and drug laws, narcotics regulation, bills on veterans hospitals, and other matters pertaining to medical economics.

DR. ERNST WILLIAM BERTNER, Houston, president 1938-1939, was born in Colorado, Texas, on August 18, 1889. He received his doctor of medicine degree from the Medical

Branch of The University of Texas in 1911. The highlights of Dr. Bertner's administration included the reactivation of the Board of Councilors and extensive efforts to stimulate the physicians throughout the state to active participation in matters of deep concern to the medical profession and the public as a whole.

The need of a basic science law was introduced during this year, and the legislative and educational committees of the American Medical Association extended great effort to secure passage of a basic science law in this state.

During Dr. Bertner's administration an agreement was made between the Lone Star State Medical, Dental, and Pharmaceutical Association and other organizations for the establishment of a Postgraduate Seminar for Negro doctors, dentists, and nurses at Prairie View. An effort was made to call on each district society in the state as a means of discouraging legislation tending toward socialized medicine.

Dr. Bertner displayed great pride in the development of medicine in Texas and pointed out the responsibility of the individual physician to his profession. He deplored any indication of the use of physicians by agents in the field of political propaganda and devoted his personal career to the development of the highest standards of medical service, medical education, and professional ethics.

DR. LEOPOLD HIRAM REEVES, Fort Worth, president 1939-1940, was born at Bonham on March 21, 1878. He received his doctor of medicine degree from the Medical Department of the University of Nashville in 1901. As seventy-fifth president of the State Medical Association, Dr. Reeves devoted himself to the development of the organizational structure of the Association. During his administration the state was completely organized for the first time, the 254 counties being grouped into 129 medical societies.

Dr. Reeves appointed the first Committee on Library Endowment and assisted in securing the pledges of several different individuals and groups for the continued support of the Library of the State Medical Association. The importance of the library and its use to the membership of the Association was continuously stressed, and efforts of the committee proved successful.

Dr. Reeves assisted in the establishment of a Section on Pediatrics in the Association, the arrangement for proper representation from the State Health Department on matters of public health, and the creation of a Council on Postgraduate Medical Education. He emphasized the importance of the Medical Practice Act and was an early advocate of a basic science law. Dr. Reeves stressed close cooperation with the State Board of Medical Examiners and the State Health Department. He worked closely with the Woman's Auxiliary and encouraged an active program for this important ally of the medical profession.

DR. PRESTON HUNT, Texarkana, president 1940-1941, was born in Lee County, Miss., on February 5, 1866. He received his doctor of medicine degree from the College of Physicians and Surgeons (now Emory University) in Atlanta, Ga., in 1901. Dr. Hunt was impressed early in his career with the great usefulness of medicine, and during his administration he was concerned with the Medical Practice Act, the trend of socialized medicine, proper distribution of medical services, and adequate medical preparedness. He stressed the far reaching effect of the State Medical Association and its Memorial Library, emphasizing his belief that, "there is no end to the usefulness of a real medical library."

Dr. Hunt assisted in processing an American Medical Association questionnaire and directed other matters relating to the problem of providing medical services under the selective service law. During his administration he cooperated with state and federal groups in providing

medical examinations for the National Youth Administration.

Dr. Hunt recognized that problems of the medical profession were best understood by the physician, and encouraged an active participation in a continuous program of *reeducation* throughout the profession.

DR. CHARLES SCOTT VENABLE, San Antonio, president 1943-1944, was born in Charlottesville, Va., on June 12, 1887, and received his doctor of medicine degree from the University of Virginia in 1900.

Dr. Venable's term as president was characterized by a firm determination to create an effective means for the prevention of socialized medicine. An early recognition of the lack of knowledge available to the lay public in matters concerning the medical profession caused Dr. Venable to establish an active Committee on Public Relations under the supervision of the Board of Trustees. In connection with this program the duties of the committee were recognized as "broad and sweeping" and every effort was made to utilize all major facilities in the distribution of information to the public. Under Dr. Venable's leadership, the House of Delegates approved in principle prepayment medical and hospital care plans in the interest of the lower income group.

Other matters to be considered during his administration were recognized by Dr. Venable under the general headings of medical economics, military membership, recognition of a Section on Radiology and Physiotherapy, revision of the State Sanitary Code, a school of public health for Texas, the International Medical Congress, medical licensure, and several other more detailed problems.

Throughout his term as president Dr. Venable emphasized the dignity of private medicine and he stated the principal motif of his administration in the heading of his address at the annual session, "Socialized Medicine Shall Not Pass."

DR. CLAUDE CARR CODY, JR., Houston, president 1946-1947, was born September 9, 1884, at Georgetown and received his doctor of medicine degree from Johns Hopkins University, Baltimore, in 1910. He served two years as president-elect before taking office as president. This condition resulted from the fact that the annual session in 1945 was not held because of World War II.

Dr. Cody during his administration complimented the profession upon the thoroughness of the knowledge and information which individual physicians displayed as members of the State Medical Association in Texas. He pointed out the amount of work necessary to stimulate the activities of the medical profession in a period of reconversion after World War II and placed much emphasis upon the work of the "general practitioner." He indicated that a Section on General Practice should be created.

He further pointed out the possibility of an inflationary period which would call for an increase in medical fees. This, he believed, would result in problems that might be met through the establishment of adjudication committees. With Dr. Cody's encouragement and assistance the Council on Medical Economics was active in seeking to establish a standard of fees for medical services on a statewide basis.

Other matters of concern to Dr. Cody's administration as expressed through the Executive Council included opposition to movements leading to socialized medicine (legislative or otherwise), the development of prepayment plans for medical service, the creation of standards for estimating the status of insurance companies dealing with the practice of medicine, and cooperation with state authorities in a survey of hospital and medical needs as related to the Hill-Burton Hospital Construction Act. The Committee on Legislation and the Executive Council continued to develop plans for changes in medical licensure. The administration worked closely with the Texas Tuberculosis Associa-

tion and endorsed the program of the American Cancer Society and its Texas Division.

Dr. Britton Elbridge Pickett, Sr., Carrizo Springs, president 1947-1948, was born near Imboden, Ark., on January 5, 1877. He received his doctor of medicine degree from the Louisville and Hospital Medical College in 1908. Throughout his administration Dr. Pickett devoted his time to the operations necessary to create harmony among the members of the profession in this state. His first effort toward this purpose was to stimulate the activities of the Committee on Public Relations and also to stress its importance.

Through the Executive Council Dr. Pickett endeavored to secure a concise picture of the problems relating to the medical profession throughout the state and from this to develop a set program of activity which would be worthy of the efforts of every physician. Dr. Pickett emphasized the absolute necessity of cooperation from every member of the official family in the office to which he had been appointed. He insisted that those who did not wish to serve should not accept appointments which would deter the activity of others. To further these policies he successfully arranged for the reorganization of councils and committees in the official family and without friction among the membership. He also wrote letters to all the members of the Association urging their cooperation.

In his many miles of travel throughout the state and the nation Dr. Pickett endeavored to place his program in appreciative hands with sufficient enthusiasm to inspire a desire to "lend a helping hand."

During Dr. Pickett's administration plans were laid for the presentation of the Basic Science Bill through the Committee on Legislation and every effort was made to display the unselfish and serious intent of this act as it related to the health of the people in this state.

The Section on General Practice, which Dr. Pickett had advocated for some years, held its first program at the annual session over which he presided, and a meeting for the general public was held for the first time at the same session.

The history of the transition of the medical profession in Texas from the early "horse and buggy" state to the present highly scientific organization is reflected in the brief summary of the activities of some of the leading personalities of the profession in this state.

It may well be said that a complete history of the state of Texas could not be written without including the development of the State Medical Association and the influence which its high purposes wielded in the formation of our present social and economic structure.

It is a notable fact that the problems which had to be faced by the living past presidents were also of major concern to those who are no longer with us. In facing these problems a pattern for posterity has been created and in some instances the solutions are yet to come.

From the earliest date of organized medicine in Texas the profession has been concerned with service to the public and the establishment of the high standards of scientific medicine. It has also been necessary that the profession concern itself in assisting its individual members to maintain their standards as related to the advancement of medical science and its application where the patient is concerned.

Since the turn of the century the threat of government medicine has threaded itself throughout the programs of the annual sessions of the State Medical Association. The numerous fine fibers of this thread have finally been spun into a heavy cord which is meant gradually to bind the strength of the profession that would serve the people of this nation as well as themselves. Through the leadership of those who have gone before and the quality of the leaders who are yet to come, the medical profession shall and must with dignity cut this

cord with the keen edge of the intellect which they command.

The people of the state, and specifically the members of the medical profession, may well be proud of the accomplishments of scientific medicine and all well informed people should band themselves together throughout this nation to protect the freedom and independence of those who have done so much to lengthen the lives and expand the happiness of those whom they serve.

Current Editorial Comment

AMERICAN HEART ASSOCIATION PROGRAM

Diseases of the heart and blood vessels constitute the greatest health problem of the nation, being responsible for more deaths than the next five leading causes combined. In children of school age, rheumatic heart disease is now the first cause of disability and death. Fear of heart disease causes nearly as much suffering as does heart disease itself. Much of this fear is unnecessary and is based on the lack of realization on the part of the public that (1) many heart complaints (such as palpitation) are of trivial origin and do not indicate heart disease at all; (2) the majority of forms of heart disease are mild and compatible with many years of useful living; and (3) even the most serious forms of heart disease can be treated with fair success in most instances.

The American Heart Association is a private health agency of physicians and laymen concerned with carrying on the fight against our number one health problem. It has passed through three stages: (1) The creation of an organization. The board of directors consists of outstanding physicians and laymen, chosen for their wisdom and vision without consideration of their abilities to secure funds. (2) The formulation of a definite program. This program embraces the aiding of physicians in forming heart clinics where they are needed and do not already exist, the education of the public in order to prevent unnecessary fear, the dissemination to physicians of information concerning new discoveries as rapidly as these are made, and the support of research by properly qualified individuals in suitable institutions. These first two stages have now been completed and the American Heart Association is now ready to take the next step. (3) The appeal to the public for funds to support its program. The week in which Valentine's Day, February 14, occurs has been designated as National Heart Week, during which funds are solicited.

It is believed by the officers and board of the American Heart Association that the three steps mentioned are essential, and that they must be taken in the sequence mentioned if the efforts of the organization are to be effective.

Local heart associations constitute the means whereby the objectives of the American Heart Association can be realized. They, too, are proceeding through the three steps mentioned. For instance, the Texas Heart Association is a strong organization with able leadership. It has formulated a fine program. It is, therefore, ready to approach the public with confidence that the response of the public will be generous. The Texas Heart Association merits the support of all Texas physicians in combating mankind's greatest enemy.

TINSLEY R. HARRISON, M. D., President
American Heart Association
Dallas, Texas

Department of Internal Medicine, Southwestern Medical College.

This department of the JOURNAL *presents editorial comments on current items pertaining to the science, art, and practice of medicine, contributed by members of the State Medical Association and scientists closely associated with the medical profession of Texas. Invitation is hereby extended to any member of the State Medical Association of Texas to submit such discussions for this department. The discussions should not be more than 500 words in length.*

Since the National Health Service started, Surrey, England, druggists have dispensed more than half a million doctors' prescriptions for medicine and pills. This is about two and a quarter times as many as in the same period last year.—Am. Col. Radiol. News Letter, Jan., 1949.

Original Articles

ESSENTIAL HYPERTENSION

GHENT GRAVES,* M.D., Houston, Texas

HYPERTENSION is not a disease per se, but is a physical sign, often without, as well as with, accompanying symptoms. The term hypertension originates from the Greek and means overtension. It is sometimes the primary and sometimes the secondary cause of death. Statistics on hypertension are difficult to evaluate. However, it has been estimated to cause from 34 to 37 per cent of all deaths due to cardio-vascular-renal diseases. Between the ages of 35 and 44 years cardio-vascular-renal diseases account for approximately 25 per cent of all deaths, whereas between 65 and 74 years of age they account for 60 per cent of all deaths. Thus as life's span increases, so increases proportionately the importance of hypertension as a cause of death.

CLASSIFICATION OF HYPERTENSION

Hypertension occurs in a number of conditions, such as urinary tract obstruction, glomerular nephritis, pyelonephritis, polycystic renal disease, coarctation of the aorta, and amyloidosis. Such cases are often spoken of as secondary hypertension. It is, however, the other type known as primary or essential hypertension which I wish to discuss.

MECHANISM OF PRODUCTION

In essential hypertension the fundamental alteration is an increase in the peripheral vascular resistance. Thus there occurs an increase in the diastolic arterial pressure. This is usually accompanied by an increase in the systolic arterial pressure as well. The consensus is that this increased peripheral resistance is due to vasoconstriction, and Prinzmetal and others have shown that this vasoconstriction occurs in the arterioles. Inasmuch as no structural changes have been demonstrated in the early cases of hypertension, it is probable that the mechanism at this stage is functional in nature. A humoral or a neurogenic basis or a combination of these two may be etiologic factors.

One of the most prominent arteriolar beds of the human body is the kidney. After the work of Goldblatt in 1934 it was hoped that the solution of the cause of hypertension might be at hand. This brilliant investigator produced hypertension in dogs by producing unilateral renal ischemia. It was later shown that a substance, renin, was secreted into the blood from the ischemic kidney. This substance in turn reacted with a substance called hypertensinogen (produced in the liver) to form hypertensin. It is this hypertensive substance in the experimental animal which produces the vasoconstriction of the arterioles, thereby producing hypertension. However, in human cases of hypertension, investigators have been unable to demonstrate these same humoral agents. Furthermore, blood transfusions from a hypertensive to a normotensive person do not produce hypertension.

Menninger has advanced the view that hypertension is in reality a psychoneurosis based on chronically excessive, inhibited hostile impulses. Others believe that the seat of the disorder is in the vasomotor center of the medulla. Although hypertension can be produced by procedures which decrease the blood flow through the medulla, the majority of cases of this malady show morphologically a normal vasomotor center. Thus the enigma of the etiology of hypertension remains unsolved.

CLINICAL ASPECTS

It is extremely important for clinicians to recognize that essential hypertension in its earlier stages is a labile process. Huchard and later O'Hare and Braun have emphasized this important characteristic. Likewise, the constitutional predisposition toward hypertension has been long recognized. According to this concept normal stimuli produce in a susceptible person an exaggerated response of the blood pressure. Hines and others have employed "cold pressor tests" and breath holding tests to select persons who will later show hypertension. However, these tests have given such variable results that they are of little practical value.

As life progresses the person with potential hypertension will show more frequent rises in the arterial pressure above the accepted normal for his age group. Still later he will develop one of the complications of hypertension. It is these complications which kill.

* *Associate Professor of Clinical Medicine, Baylor University College of Medicine.*

Read before the Section on General Practice, State Medical Association of Texas, Annual Session, Houston, April 27, 1948.

They are three in number: (1) malignant nephrosclerosis or malignant hypertension, (2) hypertensive heart disease, and (3) hypertensive cerebrovascular disease.

In the cases of malignant hypertension the earliest symptom is usually impairment of vision followed by headache and later papillo-edema and uremia. The earliest symptom of failure of the heart in hypertensive heart disease is fatigue. This is followed by exertional or paroxysmal dyspnea and precordial or substernal discomfort. A more dramatic cardiac complication is the occurrence of a coronary occlusion with the sudden onset of severe substernal, precordial, or epigastric pain associated with shock and often collapse and death. At times such cases are diagnosed as gallbladder colic or ruptured peptic ulcer. The earliest signs of the hypertensive cerebrovascular cases are episodes of transient vascular spasm. Later such patients develop cerebral hemorrhage or cerebral thrombosis. In this connection it is important to realize that these cerebral episodes may extend over a long period of time. One such patient had his initial attack forty years prior to his death. Goldring and Chasis reported that 66 per cent of patients with hypertension die of cardiac complications, 14 per cent of cerebral complications, and 8 per cent of uremia.

TREATMENT

Treatment of essential hypertension may be divided into two parts: surgical and medical. I can remember the prolonged discussions some years ago on the medical versus the surgical treatment of peptic ulcer. Time and good sense have shown the value of coordinating the two types of treatment. Such, I believe, will prove to be the best way in which to treat essential hypertension.

Surgical Treatment

Many measures such as renal omentopexy, nephropexy, and unilateral nephrectomy have been employed without beneficial results in the treatment of essential hypertension. Sympathetic denervation is now, I believe, the accepted surgical treatment of choice. This is directed toward the reduction of peripheral resistance by eliminating a wide area of vasoconstriction. It is accomplished by bilateral resection of the sympathetic chain and ganglia from the level of the ninth dorsal to either the first or second lumbar nerves and the avulsion of the greater splanchnic nerve. Resection of the adrenals or denervation of the renal arteries does not increase the effectiveness of the operation. Surgical techniques have assumed the names of different operators or clinics, such as Smithwick, Peet, Mayo Clinic, and Heuer.

Taken as a composite group, operations for essential hypertension show the following results: Approximately one-third of the cases show a significant reduction of arterial pressures for two years or longer after the operation; approximately one-third show a temporary reduction in arterial pressure lasting for from three to six months; and approximately one-third show no significant alteration in the arterial pressure level. The operations are followed by such important sequelae as postural hypotension, syncope, and paresthesia, and if the resection of the sympathetic chain extends below the first lumbar ganglion, a loss of ejaculatory power usually results. It is my custom to advise surgery only in those cases in which symptoms have not responded satisfactorily to medical treatment.

Medical Treatment

In this connection it is well to bear in mind that essential hypertension is an undulating type of disorder with numerous exacerbations and remissions. The patient should understand that hypertension and longevity are not incompatible if he will cultivate intelligent habits of living. The exact level of the blood pressure should be taken casually by the attending physician and not discussed with the patient. The physician should not go into ecstasy when he finds the patient's pressure down, for later he will be forced to the opposite extreme when he finds that the pressure is up. Where the hypertension is asymptomatic, I advise adequate rest, short vacations, the maintenance of weight at the ideal level for age and height, a laxative such as cascara and mineral oil if needed, and a sedative for sleep such as sodium amytal. The blood pressure in this group should not be checked too frequently. Every six months is often enough. In women at or beyond the menopause I have found the intramuscular injection of one of the estrogenic hormones to be of value. It is used for its vasodilatory effect, and should never be used if malignancy is present or is suspected.

In the group of cases in which symptoms are present, treatment should be directed toward the alleviation or the relief of the symptoms.

Rest.—The most important thing for patients with hypertension is rest. It is often hard to get patients to appreciate the value of rest. Long hours filled with worry, hurry, and flurry wreck the nervous systems of most hypertensive patients. However, these three —worry, hurry, and flurry—are usually habits of long standing and difficult to overcome. At times the problem of rest is interwoven with emotional problems and conflicts. Such is true of the wife confined to a hospital who feels that her husband is running around with another woman, or of the man whose mother-in-law is constantly "in his hair" at home. Such a patient as the latter had a drop in blood pressure of 40 points when his mother-in-law left for a

visit with other relatives. The patient should be encouraged to tell his physician of such problems, for unless the problems are resolved, there is little chance that treatment will succeed. Frequent short vacations are of distinct value, and a noon rest period of from thirty to sixty minutes is desirable. When the latter is impossible, a similar period on return home from work is often helpful. The best way to rest is lying down with the eyes closed in a quiet place.

Diet.—There are some who feel that diet is of no importance, but I do not hold to such a view. Recently George Herrmann and others have employed a low cholesterol diet in patients where the blood cholesterol level is high, and have combined with such a diet, choline by mouth. My patients are not satisfied on such a diet and will not stay on it willingly. Recently, a rice diet, which is essentially a low sodium diet, has come into vogue. I have had no personal experience with the rice diet. For the past two years my patients have gotten along well on a low sodium chloride diet with moderate cholesterol values. If the patient is overweight, the caloric intake is kept between 1,000 and 1,200 calories until the desired weight loss has been accomplished. If not overweight, my patients with hypertension are placed on a diet of from 1,500 to 2,000 calories.

Where headaches and dizziness are the only symptoms, I have found potassium sulfocyanate to be of benefit. The usual dose is 1 grain two or three times a day after meals. I give it in the following simple prescription: 30 grains of potassium sulfocyanate in enough distilled water to make 4 ounces. The sulfocyanate level should be checked at weekly intervals and not allowed beyond 8 mg. per 100 cc. of solution. This drug should not be employed in older patients with hypertension in whom there exists a fixed high diastolic pressure level. In such cases it seems to lead to cerebral anoxemia and mental confusion.

Exercise.—I believe that exercise of moderate degree, short of fatigue, is beneficial in cases of hypertension. This is particularly true when the patient enjoys the type of exercise prescribed.

Smoking.—What about smoking? I advise all my patients that this problem is interwoven with their will power. If their will power is strong, they should avoid tobacco. If their will power is weak, they should use a filter. Tobacco in any and all forms causes vasoconstriction of the peripheral vessels and is therefore contraindicated.

Alcohol.—Alcohol is a problem which so often gets involved with morals that it is difficult to consider it sanely. From the work of Brown and others we know that alcohol causes vasodilatation, so I advise my patients that alcohol is usually beneficial if taken in moderate quantity.

Drugs.—Often doctors as well as patients expect drugs to counteract or overcome all faulty mental or physical hygiene. If all symptoms are not promptly relieved, they throw up their hands and say there is no treatment for patients with hypertension. It is well to note that, on an average, patients with hypertension live as long or longer than do patients with other chronic diseases. One of the most useful drugs in the therapeutic armamentarium is sodium amytal. I have my patients take 3 grains every night when they are prepared to go to sleep. It is best taken with a warm drink. In addition I give theominal or phenobarbital with aminophyllin or phenobarbital in combination with novatropine and nitroglycerine three or four times daily.

Where constipation is present my custom is to prescribe cascara evacuant with mineral oil or pulvis glycyrrhiza compound at bedtime.

Where a secondary anemia is present, I have found capsules of ventriculin with iron and vitamin B or capsules of ferrous lextron useful.

In addition the physician should not forget that appropriate treatment of any intercurrent or chronic infection is always important.

The treatment of hypertension is like many other things in medicine. Theoretical considerations will get no result. The patient must first take the prescribed treatment if he is to get any benefit. It should also be remembered that drugs may be harmful as well as beneficial. It is therefore advisable for the physician to see the patient at appropriate intervals.

In a brief discussion such as this it is not possible to take up the treatment of the more serious complications of hypertension. It is also obvious that the measures outlined cannot cure the underlying cause of hypertension. They can, however, make patients more comfortable, and in some instances will definitely prolong their lives.

SUMMARY

Hypertension is statistically an important cause of death in the older age groups.

The cause of hypertension has not been determined. However, the "modus operandi" is known. It is vasoconstriction of the arterioles.

Treatment is divided into surgical treatment and medical management. The former should be reserved for patients whose symptoms do not respond satisfactorily to medical measures.

REFERENCES

1. Bing, R. J.: Effect of Vitamin A on Some Renal Functions of Dog, Am. J. Physiol. *140*:240-246 (Nov.) 1943.
2. Braun-Menendez, E., and others: Renal Hypertension, Springfield, Ill., Charles C. Thomas, Publisher, 1946.
3. Goldblatt, H.; Lynch, J.; Hanzal, R. F.; and Summerville, W. W.: Studies on Experimental Hypertension; Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia, J. Exper. Med. *59*:347-378 (March) 1934.

4. Goldring, W., and Chasis, H.: Hypertension and Hypertensive Disease, New York, The Commonwealth Fund; London, Oxford University Press, 1944.

5. Goldring, W.; Chasis, H.; Ranges, H. A.; and Smith, H. W.: Effective Renal Blood Flow in Subjects with Essential Hypertension, J. Clin. Investigation *20:*637-653 (Nov.) 1941.

6. Grimson, K. S.: Blood Pressure of Renal and of Early and Late Neurogenic Hypertension Dogs after Low Cervical Cord Section, Ann. Surg. *122:*990-995 (Dec.) 1945.

7. Gubner, R.; Silverstone, F.; and Ungerleider, H. E.: Range of Blood Pressure in Hypertension, J.A.M.A. *130:*325-331 (Feb. 9) 1946.

8. O'Hare, J. P.: Treatment of Hypertension, Am. Heart J. *2:* 510-514 (June) 1927.

9. Page, I. H., and Helmer, O. M.: Crystalline Pressor Substance (Angiotonin) Resulting from Reaction between Renin and Renin-Activator, J. Exper. Med. *71:*29-42 (Jan.) 1940.

10. Portis, S. A.: Role of Kidney in Hypertension, M. Rec. & Ann. *41:*215-217 (July) 1947.

11. Silver, S. L., and Baker, L. A.: Reexamination of Veterans Discharged Because of Heart Disease or Hypertension, J.A.M.A. *130:* 136-143 (Jan. 19) 1946.

12. Smith, H. W.: Physiology of Kidney, New York, Oxford University Press, 1937.

13. Smith, H. W.: Lectures on Kidney, University Extension Division, University of Kansas, Lawrence, Kan., 1943.

14. Treatment of Hypertension, editorial, J.A.M.A. *135:*576-577 (Nov. 1) 1947.

ABSTRACT OF DISCUSSION

DR. JAMES N. WHITE, San Angelo: Essential hypertension is a particularly fitting subject to be discussed at this time, especially for a group of general practitioners who are daily faced with this major problem in a society beset with many stresses and strains because of the complexities, dangers, and uncertainties of today.

This paper has briefly covered the known etiologic factors in the production of hypertension. I would particularly like to stress the emotional side of the picture as a major factor in the cause of idiopathic hypertension. I think that many cases of essential hypertension begin in childhood as excessively inhibited hostile impulses as Menninger believes. Some of the most malignant cases of hypertension are seen in young Negroes subjected to our civilizing influences. I am wondering if the uninhibited natives of Africa have high blood pressure.

As for treatment, in reality it is up to physicians to attempt to prevent this psychosomatic disorder before irreversible changes in the cardio-vascular-renal system have occurred. The present medical and surgical treatment in many cases of hypertension is often too late, and at best only empirical. The key to prevention lies in teaching the individual to adjust to his environment and to his emotional life so that neither is a source of conflict.

TREATMENT OF MYOCARDIAL FAILURE

Studies of a New and Safe Diuretic—Thiomerin

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ORGANIC mercurial salts and combinations with theophyllin have been intensively studied and generally accepted as the most efficient diuretics. Our original studies in the mechanisms of action led us in Galveston to conclude that mercurials produced diuresis by decreasing reabsorption in the tubules while xanthines increased glomerular filtration.[7, 8] We found that when the mercurial was given simultaneously with xanthines, the diuretic potency was enhanced and there was less tendency for the mercurial to irritate the kidney. Combinations such as salyrgan with aminophylline, mercupurin, and mercuzanthin have proved indispensable to the physician in the treatment of intractable edema. Diuresis has usually resulted from the use of an organic mercurial whether the edema was due to myocardial insufficiency, disturbed water and salt metabolism, hypoproteinemia of nephrosis, or cirrhosis of the liver.

The older preparations all had to be given intravenously. In an attempt to get a less irritating and less toxic mercurial diuretic chemists developed a succinyl urea organic compound of mercury and theophyllin, mercuhydrin, which was so much less irritating that it could be injected intramuscularly without causing much pain.

EXPERIMENTAL STUDIES

According to the experimental studies of Jackson[9] and De Graff and Lehman[5] on cat hearts and of Chapman and Shaffer[4] on dog hearts, organic mercurials produced direct toxic action on the heart with various rhythm and conduction changes and decreased functional capacity. De Graff and Lehman[5] demonstrated auriculoventricular dissociation, interventricular block, broad QRS, ventricular tachycardia, fibrillation, and standstill. Chapman and Shaffer[4] found mercuhydrin less toxic and lethal experimentally only in large doses. In lethal doses it usually produced cardiac standstill in dogs and only rarely ventricular fibrillation, which usually developed in dogs given lethal doses of other organic mercury

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and xanthine diuretics. In spite of this improved compound, still less irritating and less toxic yet efficient organic mercurials have been demanded. The occasional serious and fatal reactions in cardiac patients to intravenous injections of the organic mercurial emphasized the need for less toxic rather than more potent diuretics. The search for new, less toxic mercurials has been revived.

In 1941 Johnston[10] reported success with sodium thiosulfate in the restoration of the normal rhythm and force of beat in the tortoise heart poisoned with mercupurin and mersalyl with theophyllin.

Since several clinicians had recorded serious and fatal reactions to mercurial diuretics, a number of investigators[1, 2, 6, 12, 16, 18] between 1942 and 1946 summarized the literature and their experiences. Jackson[9] and Chapman and Shaffer[4] showed that the mercurial diuretics with theophyllin killed dogs by producing ventricular fibrillation. Ben-Asher[2] reported moderately severe reactions and electrocardiographic changes in 1 patient. He prevented these by a preliminary injection of sodium thiosulfate. Chapman and Shaffer[4] had added ascorbic acid as suggested by Marin[14] and noted a reduction in mercuhydrin toxicity but not complete protection against it.

Burch and Reaser[3] have recently reported the results of studies using the isotope sodium 22 which facilitated the elucidation of the physical chemistry of salt and water exchange. In congestive heart failure cases they found a ninetyfold retention of sodium 22. Only 50 per cent of the sodium 22 was eliminated in twelve weeks in patients with myocardial insufficiency, while in normal persons 50 per cent of the sodium 22 was eliminated in twelve days. It was, however, most significant that the mercurial diuretics increased the output of sodium 22 seventy-five times, and the chloride and bicarbonate levels followed. Electrolytes and water in the extracellular compartment showed concordant rises and falls.

THIOMERIN

During the war years no further specific advances were made in the preparation of more desirable organic mercurial diuretics. However, BAL (2-3 dimercaptopropanol, a double sulfhydryl compound) was found to be an antidote for heavy metal poisonings.[11] Long and Farah[13] demonstrated that BAL cleared arrhythmias produced by mercurial compounds in dog hearts, but the diuretic effect of the mercurial was lost.

Lehman[12] added a single sulfhydryl, sodium thioglycolate, to a monosulfhydryl, MT6, a solution of the disodium salt of N-(y-carboxymethylmercapto-mercuri-B-methoxypropyl) camphoramic acid and mercuric acetate. This is mercuzanthin with mercaptan instead of theophyllin both containing 39 mg. of mercury per cubic centimeter. This monosulfhydryl combination, called thiomerin, was compared with salyrgan and theophyllin and other xanthine containing mercurials, such as mercuzanthin and mercuhydrin in animals. MT6 with thioglycolate was found to be much better tolerated intravenously and intramuscularly and it had a further great advantage over the other preparations in that it could be injected subcutaneously without causing pain at the site of injection. It was also shown to be rapidly absorbed and satisfactory in potency.

Lehman[12] further proved that the mercaptide was more stable than the theophyllin complex. He demonstrated that the thioglycol produced a great decrease in the toxic heart reactions manifested in the electrocardiograms of anesthetized cats following intravenous injection. In fact, MT6 plus sodium glycolate in Lehman's studies caused no immediate changes in the electrocardiograms of anesthetized cats in doses up to 160 times the maximum tolerated dose of mercuhydrin. Doses of 4 cc. per kilogram of cat, equal to 240 cc. for an average man, caused no cardiac reaction while the other mercurial diuretics in doses of 0.1 cc. per kilogram, or 6 cc. for the average man, resulted in arrhythmias and conduction defects.

Thiomerin was submitted to one of us (G. R. H.) for experimental confirmation of the findings and for more extensive clinical investigation and observations. Intracutaneous, that is, subcutaneous injections of MT6 solution in rabbits has resulted in only slight transient hyperemia at the site and no gross evidence of tissue damage. In a small series of human patients in the New York University Division of Bellevue Hospital the subcutaneous injections of 2 cc. had caused no more complaints than did similar injections of sterile normal saline solution. Examination of the areas of injection showed no slough or induration in any instance. There has been 1 slough reported after intradermal injection, and 1 after the injection of the drug into edematous skin of the thigh.

EXPERIENCES WITH THIOMERIN

We have injected thiomerin subcutaneously in 100 cardiac patients and intravenously in 50 patients with no serious reactions and no cardiac mechanism disorder. Electrocardiograms were taken during and at one minute intervals after the intravenous injection of thiomerin. In half of the patients we have also taken electrocardiograms during and following the intravenous use of other organic mercurials, particularly mercuhydrin. We have not induced more than an occasional premature contraction such as Wolff and Sagall[19] recorded in 25 per cent of their cases and as Ben-Asher[2] found in his cases treated with the older organic mercurial diuretics.

In 3 patients, all of whom had had many previous

injections of mercurials and other drugs, moderately severe and persistent pain was complained of for several days after injection. In 2 of these with thick adipose layers, local fibrotic infiltration resulted.

Four patients had moderately severe febrile reactions with temperatures of 102 to 103 F. and 1 of 104 F. Two of these followed the experimental intravenous use of thiomerin, which is recommended to be used subcutaneously; both of these were from the same mixture. The fevers may have been the result of pyrogens in the distilled water. One patient had had febrile reaction with other mercurials. One patient had had a toxic reaction after mercuhydrin intramuscularly, but no reaction subsequently to thiomerin subcutaneously.

Thiomerin was given in full 2 cc. doses subcutaneously for five days in succession without any reaction or signs of significant myocardial renal irritation. Most patients have no signs of renal irritation. Some patients have had as many as twenty 2 cc. subcutaneous injections of thiomerin without any untoward effects.

The diuretic responses to thiomerin as shown in table 1 were not equal to those of other mercurials in the first twenty-four hours, but generally were more persistent for two or three days. Weight losses

TABLE 1.—*Summary of Clinical Diuretic Results.*

Drug	No. Cases	Total Urine 1st Day (cc.)	Average Increase in Output of Urine (%) 1st Day	2nd Day	3rd Day	Total
Mercupurin	611*	2,502	476	151.6	79	707.4
Salyrgan and theophyllin	125*	2,567	341	120	62	526
Mercuhydrin	18*	1,853	138	26	13	177
Thiomerin (subcutaneous)	52	3,483 (one day only)				
	48	2,941	225	89	32	377
Thiomerin (intravenous)	50	2,797	199	59	28	291

*From previous studies reported by Herrmann.[8]

of patients amounted to from 1 to 15 pounds with an average of 3 pounds, maximum loss coming within the first forty-eight hours. The urinary outputs increased from 1.5 to 6 liters, with an average of 4 liters in the first twenty-four hours. On the second and third days the output was usually augmented by a half or a quarter liter (table 1).

THIOMERIN WITH AMMONIUM CHLORIDE

Dr. E. H. Schwab[17] observed in 40 of his patients with chronic congestive heart failure of various types, all of whom were taking ammonium chloride, that thiomerin was effective after small doses subcutaneously. The effective dose in 34 instances was 0.5 cc. and the average twenty-four hour urinary output was 3.27 liters. In 4 instances 0.75 cc. was the dose, resulting in an average twenty-four hour urinary output of 5.25 liters, the maximum being 6.5 liters and the minimum 4,800 cc.

No unfavorable reactions were noted except in 1 instance in which the patient had received an injection of a "cold vaccine" the same day. In this case temperature elevation to 100.5 F. occurred. The sites of both injections became rather painful and red, but the irritation subsided the following day.

CONCLUSIONS

We believe that we have sufficient evidence to indicate that thiomerin has practical and experimentally proven as well as theoretical advantages over the older organic mercurials.

It is less toxic and less irritating to patients. It is the only organic mercurial diuretic that is tolerated in the subcutaneous tissue; it must not be injected into edematous skin or adipose tissues. It may be used as a test in from 0.25 to 0.5 cc. doses subcutaneously in any patient suspected of hypersensitivity to mercury.

The diuretic potency is at least comparable to that of the older preparations and has the advantage of being generally less dramatically dehydrating on the first day and more persistent in effect for two or three days.

Acid salts augment the diuretic action to the point that half or less doses, 0.5 cc. to 0.75 cc. (20 to 30 mg.), are effective.

Electrocardiographic studies after an injection of thiomerin showed no changes in conduction or significant changes in rhythm. Only in 3 patients were occasional premature contractions recorded.

The urine studies revealed evidences of renal irritation in a few instances, but not any more than after the use of other mercurials. Thiomerin has been given on five successive days without producing albuminuria, cylindruria, or hematuria.

REFERENCES

1. Barker, M. H.; Lindberg, H. A.; and Thomas, M. E.: Sudden Death and Mercurial Diuretics, J.A.M.A. *119*:1001-1005 (July 25) 1942.

2. Ben-Asher, S.: On Toxicity of Mercurial Diuretics; Observations on 18 Cases with Suggestions for Prevention of Toxic Reactions, Ann. Int. Med. *25*:711-724 (Oct.) 1946.

3. Burch, G. E., and Reaser, P. B.: Water and Sodium Balance in Congestive Heart Failure, New Orleans M. & S. J. *99*:124-128 (Sept.) 1946.

4. Chapman, D. W., and Shaffer, C. F.: Mercurial Diuretics; Comparison of Acute Cardiac Toxicity in Animals and Effect of Ascorbic Acid on Detoxification in Their Intravenous Administration, Arch. Int. Med. *79*:449-456 (April) 1947.

5. DeGraff, A. C., and Lehman, R. A.: Acute Toxicity of Mercurial Diuretics, J.A.M.A. *119*:998-1001 (July 25) 1942.

6. DeGraff, A. C., and Nadler, J. E.: Review of Toxic Manifestations of Mercurial Diuretics in Man, J.A.M.A. *119*:1006-1011 (July 25) 1942.

7. Herrmann, G.: Kidney Parenchyma, Circulating Blood Plasma, and Tissue Fluids in Diuresis, J. Lab. & Clin. Med. *26*:211-222 (Oct.) 1940.

8. Herrmann, G.: Modern Treatment of Congestive Heart Failure, Proc. Interst. Postgrad. M. A. North America (1940) p. 359-366, 1941.

9. Jackson, D. E.: Pharmacological Action of Mercury in Organic

Combination, J. Pharmacol. & Exper. Therap. *29:*471-484 (Oct.) 1926.

10. Johnston, R. L.: Cardiac Depression by Mercurial Diuretics, J. Lab. & Clin. Med. *27:*303-307 (Dec.) 1941.

11. Knauer, J. G., and Mattingly, T. W.: Personal communication to the author.

12. Lehman, R. A.: Further Studies on Acute Toxicity of Mercurial Diuretics, Proc. Soc. Exper. Biol. & Med. *64:*428-433 (April) 1947.

13. Long, W. K., and Farah, A.: Influence of Certain Sulfhydryl Compounds on Toxicity of Organic Mercurial Diuretics, J. Pharmacol. & Exper. Therap. *88:*388-399 (Dec.) 1946.

14. Marin, J. V.: Ascorbic Acid Therapy of Mercurial Intoxication in Guinea Pigs, Rev. Soc. argent. de biol. *17:*581-586 (Nov.) 1941.

15. Ortiz y Ramirez, T.: Personal communication to the author.

16. Pines, I.; Sanabria, A.; and Hernandez Arriens, R. T.: Mercurial Diuretics; Addition of Magnesium Sulphate to Prevent Toxic Effects of Their Intravenous Administration, Brit. Heart J. *6:*197-213 (Oct.) 1944; also, La Influencia de la Adicion de Pequenas Dosis de Sulfato de Magnesia Sobre los Efectos Toxicos Ocasionados por la Administracion Endovenosa de los Diureticos Mercuriales; Estudio Experimental, Rev. Policlin. Caracas *14:*1-38 (Jan.-Feb.) 1945.

17. Schwab, E. W.: Personal communication to the author.

18. Volini, I. F.; Levitt, R. O.; and Martin, R.: Studies on Mercurial Diuresis; Sudden Death Following Intravenous Injection; Report of 3 Cases, with Electrocardiographic Studies in 2, J.A.M.A. *128:*12-17 (May 5) 1945.

19. Wolff, L., and Sagall, E. S.: Intravenous Administration of Mercurial Diuretics in Man; Immediate Effect on Electrocardiogram, Arch. Int. Med. *81:*137-144 (Feb.) 1948.

PROGNOSIS OF BUNDLE BRANCH BLOCK

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THE purpose of this study is to determine the prognostic significance of right and left bundle branch block. In this series, left bundle branch block was considered to be present if the QRS of the electrocardiogram was prolonged to 0.12 second or more, with the major deflection up in lead I and down in lead III, with the converse of this taken to represent right bundle branch block.

REPORTS IN LITERATURE

In the literature can be found rather striking differences of opinion regarding the prognosis as well as the relative incidence of right and left bundle branch block. Graybiel and Sprague[2] in 1933 found the prognosis similar in all groups of bundle branch block. The average duration of life after discovery of the abnormal tracing was fourteen months. They concluded that the prognosis depended upon the condition of the patient, not on the type of ventricular complex. The ratio of right to left bundle branch block in their series was about 1 to 5.

King,[3] in 1934, was able to follow 104 patients with bundle branch block and found that the average duration of life following the discovery of the abnormality was 1 to 1.8 years. He concluded that the outlook was grave, regardless of the causative factors. He found the ratio of right to left bundle branch block to be about 1 to 5.

Bloom and Policoff,[1] in 1942, reviewed 35 cases and concluded that bundle branch block does not affect either the immediate or ultimate prognosis, and that the prognosis is entirely dependent on the condition causing the conduction defect. The ratio of right to left bundle branch block in their series was about 1 to 13.

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Sampson and Nagle,[5] in 1936, in a review of 157 cases of "classical bundle branch block" noted the high mortality during the first year and the remarkable diminution of the mortality rate in the groups which survived that period. They found the ratio of right to left bundle branch block to be about 1 to 13.

Sodi Pallares and others[6] in a study of 125 cases of bundle branch block in 1945 found right bundle branch block to occur more frequently than left in the ratio of 1.5 to 1. They did not discuss prognosis in their report.

Perera and others,[4] in 1942, reporting a series of 104 patients with right bundle branch block, found the average survival period to be between four and five years. They expressed the opinion that patients with right bundle branch block gave a distinctly more favorable prognosis than those with the disturbance on the left.

Willius and others,[7] studying a large series of cases in 1941, concluded that the highest mortality rate was in the first year following discovery of the lesion and emphasized that conduction defects as a whole have a better prognosis than had been previously indicated, particularly in the case of right bundle branch block. They found the ratio of right to left bundle branch block to be about 1 to 3.

PRESENT STUDY

The present study was based on a series of 118 cases of bundle branch block occurring in the five year period 1938-1942, inclusive. We were able to contact these patients through follow-up letters, or were able to ascertain accurately the dates of death. All others were excluded, as were several cases of short P-R and prolonged QRS of the type described by Wolff, Parkinson, and White.[8]

Cardiac enlargement was considered as present only when confirmed by roentgen examination, which was carried out in all but 13 patients.

Incidence

Incidence of bundle branch block was determined according to the following categories:

1. *Type.* There were 41 cases of right bundle branch block and 77 cases of left, giving a ratio of about 1 to 2.

2. *Age.* As would be expected, the mean age at the time of diagnosis was rather late—63 years in the case of right bundle branch block, and 59 in the case of left lesions.

3. *Sex.* In keeping with the incidence of arteriosclerotic heart disease, which is stated to be the most common cause of conduction defects of all kinds, males predominated over females in both types of bundle branch block 2 to 1.

4. *Etiology.* Eighty per cent of the patients were found to have coronary heart disease with or without the presence of hypertension. Hypertension alone was considered the etiologic factor in 26 cases, rheumatic heart disease in 5 cases, syphilitic heart disease in 4 cases, and thyrotoxicosis in 4 cases. There were 13 patients in whom no evidence of heart disease could be found at the time of examination.

Prognosis

Immediate.—Twenty-two, or 18 per cent, of our 118 patients died in the hospital or within six months after the diagnosis had been made. Of these, 19 showed left and 3 right bundle branch block.

Ultimate.—The 118 cases have been divided into those patients known to be dead and those known to be living. Of the former there are 64, including the 22 patients who died within the first six months. Of this total of 64 persons, 45 had left bundle branch block and 19 had right bundle branch block (table 1).

TABLE 1.—*Length of Life after Diagnosis of Bundle Branch Block of 64 Patients Known to Be Dead.*

	Total	Less Than 6 Mo.	6 Mo.-1 Yr.	1-4 Yr.	4-7 Yr.	7-10 Yr.	More Than 10 Yr.
Left block	45	19	6	11	7	1	1
Right block	19	3	1	8	4	2	1

Discussion of Patients Known to Be Dead

Left Lesion.—Most of the patients who had left bundle branch block were males, had arteriosclerotic heart disease with coronary insufficiency, and showed clinical signs of congestive failure. More than half had roentgenographic evidence of cardiac enlargement. As mentioned before, 19 of the 45 died within six months, and 6 died between six months and one year. Twenty lived longer than one year. Only 1 lived as long as ten years.

Right Lesion.—Seventeen of the 19 patients who had right bundle branch block and are known to be dead were males. All had arteriosclerotic heart disease with or without hypertension except for 1 case of syphilitic aortitis and 1 case in which there was no demonstrable evidence of heart disease. Seven had symptoms of coronary insufficiency; 7 showed cardiac enlargement and congestive failure. Only 3 of this group died within the first six months. Fifteen, or approximately 80 per cent, lived longer than one year, as contrasted with less than 50 per cent of the patients with left bundle branch block. Only 1 lived as long as ten years.

Discussion of Living Patients

Of the 118 patients with bundle branch block, we know that 54 are living. Of these 54, 32 have lesions on the left and 22 on the right. All have had the conduction defect for more than five years. One has been known to have the defect for more than seventeen years. The majority have had bundle branch block for from seven to nine years (table 2).

Left Lesion.—In this group of 32 patients, 19 are male and 13 are female. The mean age is 69. Fourteen have arteriosclerotic heart disease, 7 have hypertensive cardiovascular disease, and 5 are thought to have both. Ten have had attacks of coronary insufficiency, 5 have been in congestive failure, and 10 have roentgen-ray evidence of heart enlargement. There was no evidence of heart disease demonstrable in 5 patients at the time of examination, and 1 has thyrotoxicosis. There are no cases of rheumatic heart disease in this group.

Sixteen of these patients have been known to have left bundle branch block for from seven to ten years.

TABLE 2.—*Period of Time Bundle Branch Block Has Been Known to Be Present in 54 Living Patients.*

	Total	5-6 Yr.	6-7 Yr.	7-10 Yr.	More Than 10 Yr.
Left block	32	3	6	16	7
Right block	22	0	4	16	2

Right Lesion.—In the group of 22 patients who have right bundle branch block 16 are male, 6 female. The mean age is 72 years. Six are thought to have arteriosclerotic heart disease, 5 hypertensive cardiovascular disease, and 3 are thought to have both. Only 3 have had attacks of coronary insufficiency, 2 have shown signs of congestive failure, and 3 have roentgen-ray evidence of heart enlargement. There was no demonstrable evidence of heart disease found at the time of examination in 6 of these 22 patients. One patient has thyrotoxicosis and 1 has rheumatic heart disease.

Sixteen of these patients have been known to have right bundle branch block for from seven to ten years, and 2 for eleven years.

Of the total of 77 patients with left bundle branch block, only 32 are living, whereas of the total of 41 patients with right bundle branch block, 22 are living. Thus, it would appear that the right defect indicates

a more favorable outlook both as to immediate and ultimate prognosis.

SUMMARY AND CONCLUSIONS

1. In a follow-up study of a series of 118 cases of bundle branch block, we found the ratio of right to left bundle branch block to be higher than that usually reported (1 to 1.87).

2. Conduction defects of the bundle branches have a better prognosis than was formerly thought to be the case.

3. The highest mortality occurs within the first six months following diagnosis, particularly in left bundle branch block.

4. Left bundle branch block is of more serious significance both as regards immediate and ultimate prognosis.

5. Prognostication should depend upon the clinical condition of the patient and the type of heart disease present as well as the electrocardiographic pattern.

REFERENCES

1. Bloom, N., and Policoff, L. D.: Bundle Branch Block; Etiology and Prognosis, South. M. J. *35:*1097-1100 (Dec.) 1942.

2. Graybiel, A., and Sprague, H. B.: Bundle Branch Block; Analysis of 395 Cases, Am. J. M. Sc. *185:*395-401 (March) 1933.

3. King, J. T.: Bundle-Branch Block: Case Analysis with Especial Reference to Incidence and Prognosis, Am. J. M. Sc. *187:*149-171 (Feb.) 1934.

4. Perera, G. A.; Levine, S. A.; and Erlanger, H.: Prognosis of Right Bundle Branch Block; Study of 104 Cases, Brit. Heart J. *4:* 35-42 (Jan.-April) 1942.

5. Sampson, J. J., and Nagle, O. E.; Prognosis of Bundle Branch Block and Other Intraventricular Conduction System Lesions, Am. J. M. Sc. *191:*88-97 (Jan.) 1936.

6. Sodi Pallares, D.; Brumlik, J.; Mendoza, F.; and Cabrera, E.: Estudio de 125 Cases de Bloqueo de Rama, Arch. Inst. cardiol. Mexico *15:*241-265 (Aug. 31) 1945.

7. Willius, F. A.; Dry, T. J.; and Reeser, R., Jr.: Life Expectancy in Conductive Disturbances Affecting Ventricular Complex of Electrocardiogram; General Considerations of Bundle Branch Block with Concordant and with Discordant Graphs and Wide S Wave Pattern, Based on 1,611 Cases, Arch. Int. Med. *67:*1008-1026 (May) 1941.

8. Wolff, L.; Parkinson, J.; and White, P. D.: Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia, Am. Heart J. *5:*685-704 (Aug.) 1930.

SURGICAL TREATMENT OF CONGENITAL HEART DEFECTS

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TEN years ago the field of cardiac surgery was limited to the repair of accidental wounds and to pericardiectomy for constrictive pericarditis. Courageous attempts had been made by Doyen in 1913 and by Cutler and Beck later to correct valvular heart lesions, but without success. The 1937 edition of "Heart Disease" by Paul White contained the statement that "there is no curative treatment, surgical or medical, for congenital cardiac defects." Then in 1938, Robert Gross, of Boston, published his account of the first successful ligation of a patent ductus arteriosus. The impetus was given for the study of methods to correct other heart lesions, but congenital heart disease presented the best possibilities.

CLASSIFICATION OF DEFECTS

Interest in accurate diagnosis of these lesions had been aroused by Maude Abbott, who published in 1936 a study of congenital heart disease based on clinical and autopsy reports of 1,000 cases. These were classified in three groups according to occurrence of cyanosis:

1. The "acyanotic group" without abnormal communications or shunts. Most frequently found in this group are aortic or subaortic stenosis, right aortic arch or dextrocardia, and coarctation of the aorta.

2. The "usually acyanotic group" in which arterial blood enters the pulmonary circulation through a shunt. Representative of this group are interventricular septal defect, interauricular septal defect, and patent ductus arteriosus.

3. The "cyanotic group" in which quantities of venous blood enter the systemic circulation. Most important in this group are pure pulmonary stenosis, tetralogy of Fallot, and Eisenmenger's complex. In the tetralogy of Fallot there is stenosis or atresia of the infundibular portion of the pulmonary artery, dextroposition of the aorta, interventricular septal defect, and right ventricular hypertrophy. The Eisenmenger complex includes an interventricular septal defect and dextroposition of the aorta, but a normal or dilated pulmonary artery.

To Helen Taussig is due great credit for the recent advances made in knowledge of congenital heart disease and diagnosis of the many and varied lesions. A summation of her extensive work has appeared in book form under the title "Congenital Malformations of the Heart."

Surgical procedures are now available for successful treatment of one of the defects in each of Abbott's three groups. These are patent ductus arteriosus, coarctation of the aorta, and the tetralogy of Fallot. In October, 1944, Clarence Crafoord, of Stockholm, Sweden, was the first to correct a coarctation of the aorta. In November, 1944, Alfred Blalock, of Baltimore, first successfully treated the tetralogy of Fallot by construction of an artificial patent ductus arteriosus.

Of utmost importance is accurate diagnosis and

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careful selection of cases for operation. Here the surgeon must depend on the skills of cardiologist, roentgenologist, and physiologist.

PATENT DUCTUS ARTERIOSUS

The diagnosis of patent ductus arteriosus can be made with certainty in almost every case. Severity of symptoms varies roughly with the size of the ductus. Symptoms are absent or minimal in early life, becoming more apparent as cardiac failure or other complications appear. Of these, subacute bacterial endarteritis is most serious, being responsible for 30 per cent of deaths in patients with patent ductus. Since much blood is diverted from the systemic circulation, growth is usually retarded. From 45 to 70 per cent of the blood leaving the left ventricle passes through the shunt and is returned to the ventricle by way of the lungs.

The most characteristic physical finding is the heart murmur, typically a continuous or "machinery" murmur best heard in the left second and third interspaces near the sternal border and usually accompanied by a palpable thrill. The pulmonic second sound is loud. The systolic blood pressure is increased, and the diastolic decreased, resulting in a wide pulse pressure. Roentgen studies of the heart may be useful although they may show no abnormalities. Characteristically, the heart is shown to be slightly enlarged to the left, and there is a distinct enlargement of the pulmonary artery segment. The lung fields show vascular markings to be increased, and on fluoroscopy there may be visible pulsations in the lungs—the so-called "hilar dance."

The electrocardiogram may be normal although usually there is slight left axis deviation.

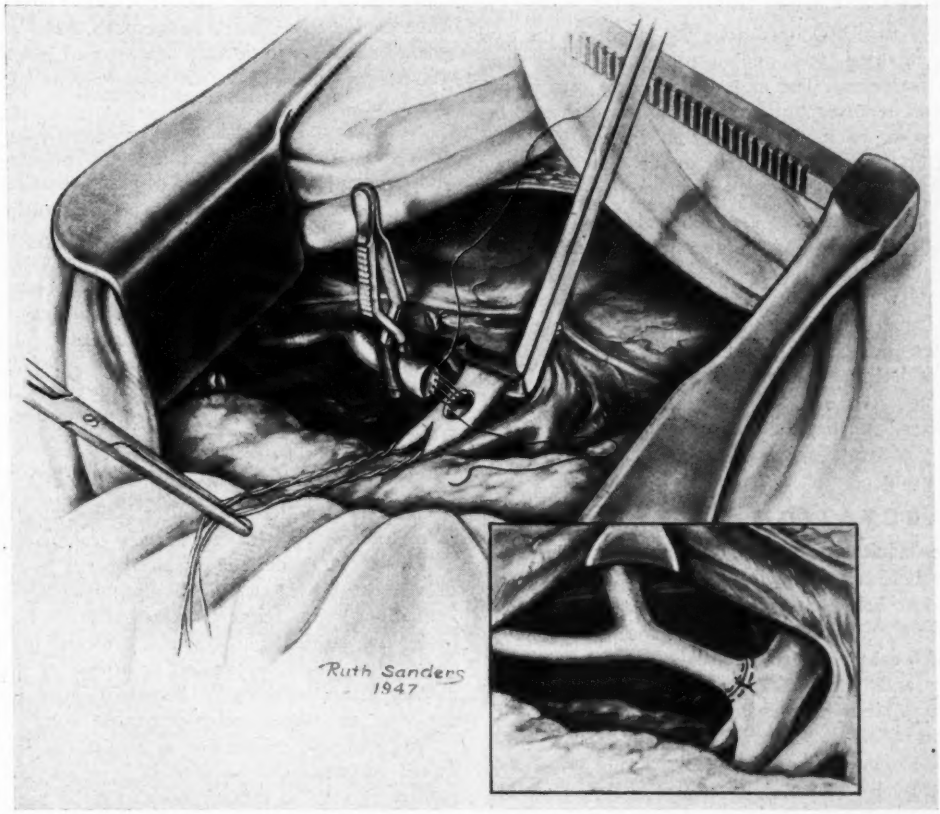

FIG. 1. Technique of the Blalock-Taussig operation performed on the right side. The end of the divided subclavian branch of the innominate artery is anastomosed to the side of the right pulmonary artery.

Operative Treatment

Operative treatment of the patent ductus undertakes to eliminate the arteriovenous shunt by ligation, division, or excision of the ductus. The original operation performed by Gross was simple ligation, later supplemented by the addition of cellophane be-

neath the ligature to stimulate fibrous proliferation. Because of a small number of recurrences, Gross changed his procedure to division of the ductus and closure of the cut ends by suture. Crafoord has gone even further to complete excision of the ductus with closure of the defects in the walls of the aorta and pulmonary artery by suture. Many still consider ligation of some type adequate and the added dangers of division or excision unjustified.

More than 600 operations for patent ductus have been reported, and undoubtedly many more have been performed. The mortality is 5 per cent among all cases reported but probably no more than 2 per cent in the hands of the most experienced surgeons. Mortality is greatly increased in the older age group and in the presence of subacute bacterial endarteritis.

In consideration of the relatively low operative mortality, especially in childhood, and of the conclusive evidence that life expectancy is decreased in those afflicted with this lesion, the opinion is now widespread that operation should be done in all children between the ages of 3 and 10 years when the diagnosis is definitely established. The occurrence of bacterial endarteritis is indication for operation at any age. In adults, decision to operate is based on the severity of symptoms and on the degree of significant heart strain.

COARCTATION OF THE AORTA

The "adult type" of coarctation of the aorta, in which there is a narrowing of the lumen of the aorta at or just below the insertion of the ductus, lends itself to surgical treatment, while the "infant type," in which a longer segment of the aorta is involved, usually ends fatally shortly after birth. With the adult type, it is possible to develop a collateral circulation which allows survival in many cases to adult life. There may be no symptoms during childhood, but eventually evidences of cardiac failure or of hypertension appear. Hypertension occurs in the head and upper extremities while blood pressure in the lower extremities is low or even unrecordable. Enlargement of collateral arteries may be visible or palpable in the back and the axilla, and a vascular murmur is often heard in the back. A loud systolic murmur is heard at the base of the heart.

Roentgenograms after the age of 6 or 7 years may show characteristic notching of ribs caused by pressure from enlarged and tortuous intercostal arteries. The heart shadow is at first normal, but later shows enlargement to the left. Angiocardiograms may demonstrate the stenotic area and the dilated arteries.

The average age reached by patients with coarctation of the aorta has been estimated as 32 years. Most will succumb to heart failure. Some deaths are due to rupture of the aorta, cerebral hemorrhage, or bacterial endarteritis.

Operative Treatment

Although the operation is more dangerous than that for treatment of patent ductus arteriosus, it should probably be advised for all patients between the ages of 6 and 16 years, whenever the diagnosis has been definitely made. Before 6 years, collateral circulation is hardly adequate to allow clamping of the aorta for sufficient time to permit resection of the stenosed segment and anastomosis. After 16 years, the aorta begins to develop athermatous plaques and rigidity of the wall which may prevent successful anastomosis.

Although the first successful operation for coarctation was done by Crafoord in 1944, Robert Gross, independently and without knowledge of Crafoord's work, performed a similar operation shortly afterward. By December 6, 1947, Gross had operated on 40 patients for coarctation with 5 deaths. Only a few cases have been reported by others. Although resection and end-to-end anastomosis is the operation of choice, this may be technically impossible. In a substitute method developed experimentally by Blalock, the subclavian artery is divided, the distal end ligated, and the proximal end anastomosed to the side of the aorta below the coarctation.

TETRALOGY OF FALLOT

Cyanosis is noticed soon after birth and gradually increases in severity for the first few years in tetralogy of Fallot. The cyanosis is produced partly by mixture of venous and arterial blood through a high interventricular septal defect associated with an aorta displaced toward the right so that it overrides the septal defect, and partly by stenosis or atresia of the pulmonary artery resulting in decreased blood flow to the lungs and consequent poor oxygenation.

Symptoms are mainly due to anoxia and to widespread thrombosis, especially in cerebral and pulmonary vessels. In infancy there may be attacks of loss of consciousness or convulsions from cerebral anoxia. There is usually definite retardation in growth and development; attempts to walk are delayed and later there is low tolerance to exercise, not so much from dyspnea as from fatigue. A characteristic trait of children thus afflicted is "squatting" to rest at frequent intervals.

Physical signs are striking. There is cyanosis of lips and nail beds, intensified by exertion or crying. Conjunctivas and scleras are injected. Fingers and toes become clubbed at an early age. A systolic murmur is heard at the base of the heart, and occasionally a thrill. Blood examination shows marked polycythemia, red blood cell counts often reaching eight or nine million per cubic centimeter with correspondingly high hemoglobin reading. The hematocrit is high.

Roentgen-ray findings are indispensable in arriving at a correct diagnosis. The heart is normal in size and may be normal in shape but usually shows a characteristic concavity in the region of the pulmonary artery segment. This, combined with a slightly raised apex indicating right ventricular hypertrophy, produces the typical "boot-shaped" heart which is practically diagnostic. In addition the small size of the pulmonary artery is shown by an abnormally clear "pulmonary window" as seen in the left anterior oblique view of the heart. An important roentgen finding is unusual clearness of the lung fields and absence of visible pulsations in the lungs. In about 20 per cent of cases there is a right sided aortic arch.

The electrocardiogram regularly shows right axis deviation.

Operative Treatment

No curative treatment is available for cyanotic heart disease as for patent ductus arteriosus and coarctation of the aorta. The brilliant work of Taussig and Blalock, first on experimental animals and then on human subjects, has proved, however, that low oxygen saturation of the blood can be raised significantly by increasing blood flow through the lungs, and the symptoms of anoxia can be improved or completely relieved. This is accomplished by the construction of an artificial ductus arteriosus, formed by anastomosis of a branch from the aorta to one of the pulmonary arteries. The operation as developed by Blalock has a number of possible variations depending on the side on which the aorta descends, the size of the pulmonary artery, and the availability of a systemic vessel. The most efficient anastomosis is that made with the end of the subclavian branch of the innominate artery to the side of the right or left pulmonary artery.

Blalock has operated on more than 600 patients with cyanotic heart disease. The overall mortality is about 17 per cent in his cases and has been somewhat higher in small series now being reported by other surgeons. Willis J. Potts, of Chicago, has devised another method of constructing an artificial ductus arteriosus, consisting of side to side anastomosis of the aorta and pulmonary artery. This is made possible by the use of an ingeniously designed clamp which isolates a segment of the wall of the aorta while allowing free flow of blood through the unobstructed portion of the lumen.

Since patients requiring these operations are poor surgical risks, the mortality is necessarily high. The ultimate outlook is uncertain after operation, since the addition of an artificial patent ductus to the complexity of congenital abnormalities adds extra strain on the left ventricle. There is no doubt, however, that most patients show marked dimunition in cyanosis, increase in arterial oxygen saturation, and relief of symptoms soon after operation. Since these patients are all physically handicapped, many to the point of invalidism, restoration to normal or nearly-normal activity fully justifies the risk of operation regardless of what the future may have in store for them.

EXPERIENCE OF AUTHOR

I have operated on 15 cases of patent ductus arteriosus,* using the multiple ligation described by Blalock in all cases. Twelve of these patients were children, of whom 1 died of postoperative pulmonary complications. Three were adults of whom 1 died of acute cardiac decompensation and another of hemorrhage one week after operation.

Twenty-seven children with cyanotic heart disease have been operated on. In 3, anastomosis was impossible because of insufficient length of systemic vessels; 1 of these 3 died. In 23, the Blalock anastomosis operation was completed. Five of this group died. On the last patient of the 27, the Potts operation was done successfully. The total mortality was 22 per cent. Improvement was shown by every child who survived the anastomosis, and most patients were strikingly improved.

Grateful acknowledgement is made to Dr. Earl Wier and his associates of the anesthesiology department of Baylor Hospital in Dallas, since without dependable anesthesia, these operations would be impossible.

REFERENCES

1. Benn, J.: Prognosis of Patent Ductus Arteriosus, Brit. Heart J. *9:*283-291 (Oct.) 1947.

2. Blalock, A., and Taussig, H. B.: Surgical Treatment of Malformations of Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J.A.M.A. *128:*189-202 (May 19) 1945.

3. Committee on Heart, Arkansas Medical Society, Chamberlain, C. T., Chairman: Modern Concepts of Cardiovascular Disease, J. Arkansas M. Soc. *43:*194-197 (Jan.) 1947.

4. Crafoord, C., and Nylin, G.: Congenital Coarctation of Aorta and Its Surgical Treatment, J. Thoracic Surg. *14:*347-361 (Oct.) 1945.

5. Cutler, E. C., and Beck, C. S.: Present Status of Surgical Procedures in Chronic Valvular Diseases of Heart, Arch. Surg. *18:*403-416 (Jan., Part 2) 1929.

6. Doyen, E.: Chirurgie des Malformations Congenitales ou Acquises du Coeur, Cong. Franc de Chir. Proc. Verb. *26:*1062, 1913.

7. Gibson, S.: Indications for Surgery in Congenital Cardiovascular Anomalies, Rocky Mountain M. J. *44:*459-461 (June) 1947.

8. Gross, R. E., and Hubbard, J. P.: Surgical Ligation of Patent Ductus Arteriosus; Report of First Successful Case, J.A.M.A. *112:*729-731 (Feb. 25) 1939.

9. Hand, A.: Cerebral Abscess: Complication of Congenital Cardiac Disease (Fallot's Tetralogy), J. Pediat. *31:*662-668 (Dec.) 1947.

10. Humphreys, G. H., II,: Diagnosis and Treatment of Congenital Cyanotic Heart Disease, Bull. New York Acad. Med. *23:*283-291 (May) 1947.

11. Levine, S. A., and Geremia, A. E.: Clinical Features of Patent Ductus Arteriosus with Special Reference to Cardiac Murmurs, Am. J. M. Sc. *213:*385-394 (April) 1947.

*AUTHOR'S NOTE: Since this paper was submitted for publication 23 additional patients with cyanotic heart disease have been operated on and an anastomosis was completed in all but 1. Fourteen were done by the Potts technique and 8 by the Blalock procedure. This makes a total of 50 operations. There were 8 deaths.

Five additional patients with patent ductus arteriosus have been operated on with no deaths. In 2 of these cases the ductus was divided and closed by suture.

One coarctation of the aorta has been operated on, and a successful end-to-end anastomosis was done after resection of the stenotic segment.

12. McNealy, R. W.: Surgery of Patent Ductus Arteriosus, Am. J. Dis. Child. *73:*124-125 (Jan.) 1947.

13. Murray, G.: Tetralogy of Fallot and Its Surgical Treatment, Brit. M. J. *2:*905-906 (Dec. 6) 1947.

14. Murray, G.: Surgical Treatment of Congenital Heart Disease (Tetralogy of Fallot), Canad. M. A. J. *58:*10-12 (Jan.) 1948.

15. Nelson, W.; Mayerson, H. S.; Clark, J. H.; and Lyons, C.: Studies of Blood Volume in Tetralogy of Fallot and in Other Types of Congenital Heart Disease, J. Clin. Investigation *26:*860-868 (Sept.) 1947.

16. Parker, R. L.: Principal Clinical Features of Patent Ductus Arteriosus and Tetralogy of Fallot, J. Iowa M. Soc. *38:*85-88 (March) 1948.

17. Porter, W. B.: Effect of Patent Ductus Arteriosus on Body Growth, Tr. A. Am. Physicians *59:*248-251, 1946; also, Am. J. M. Sc. *213:*178-180 (Feb.) 1947.

18. Potts, W. J.; Smith, S.; and Gibson, S.: Anastomosis of Aorta to Pulmonary Artery; Certain Types in Congenital Heart Disease, J.A.M.A. *132:*627-631 (Nov. 16) 1946.

19. Rich, A. R.: Hitherto Unrecognized Tendency to Development of Widespread Pulmonary Vascular Obstruction in Patients with Congenital Pulmonary Stenosis (Tetralogy of Fallot), Bull. Johns Hopkins Hosp. *82:*389-395 (March) 1948.

20. Schultz, F. B.: Congenital Heart Disease, Hawaii M. J. *6:*241-244 (March-April) 1947.

21. Touroff, A. S. W., and Vesell, H.: Experiences in Surgical Treatment of Subacute Streptococcus Viridans Endarteritis Complicating Patent Ductus Arteriosus, J. Thoracic Surg. *10:*59-83 (Oct.) 1940.

22. Van Diggelen, H. T.: Operation for Congenital Coarctation of Aorta, Lancet *2:*64-65 (July 12) 1947.

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VITAMIN E IN HEART DISEASE

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SINCE Vogelsang and Shute[6] reported in a letter to *Nature* in 1946 that vitamin E was beneficial in coronary heart disease a flood of comments has followed. The favorable comments have chiefly been written by laymen for the lay press ably abetted by a series of articles by the original authors. These have chiefly appeared in *Medical Records*,[7] a periodical published in Kutztown, Pa.

CLAIMS OF VOGELSANG AND SHUTE

According to these authors, when vitamin E is used in heart disease it will, among other things, accomplish the following results:

1. "The relief of pain in anginal cases is usually both rapid and nearly or quite complete." Ninety-six per cent were helped.

2. In rheumatic heart disease 53 per cent showed "marked improvement" and 96 per cent were benefited. In acute rheumatic fever "Vitamin E combined with sulphonamide seemed to restore these patients to a clinical normal in a remarkably short time."

3. In hypertensive heart disease 85 per cent were improved.

4. Improvement has been noted in other cardiovascular conditions, notably intermittent claudication, old cerebral thrombosis, and acute femoral thrombosis.

Scientifically they admit their treatment is not a cure all. Nevertheless they assert that "Our data errs, if anything, on the pessimistic side." They point out that the drug is practically nontoxic.

These results are ascribed by Vogelsang and Shute to probable reopening of old capillaries or proliferation of new ones or dilatation of present ones. It is also suggested that scar tissue, fibrous tissue, and cardiac muscle may be benefited and that vascular accidents may be prevented.

It is little wonder that the lay press after reading such reports would call this the "miracle cure." It is little wonder that laymen should be anxious to take daily from six to twelve of these 50 mg. vitamin E capsules, each costing 3 cents. The maintenance dose used by the Canadian doctors is from three to five capsules daily.

REPORTS OF OTHERS

Unfortunately, however, no one so far as I know has published a well controlled series using the same dosage levels as the Canadian authors. Makinson and others[3] concluded from a study of 22 patients with typical angina of effort that "vitamin E is not of any therapeutic value in the routine treatment of angina pectoris." These authors gave only 150 mg. daily for three weeks, not a comparable dosage or time schedule. However, Ball[1] in the same issue of the *Lancet* did report on 10 cases with angina treated with 300 mg. daily for six weeks, and his results did not support the claims made by Vogelsang and Shute. There was marked improvement in 1 and some improvement in 3 other cases. He pointed out that placebos will give improvement in 40 per cent of such cases, which makes evaluation difficult.

Editorially, *The Journal of the American Medical Association*[5] referred to a statement made in a panel discussion on cardiac disease at the American Medical Association meeting in June, 1947, that: "Vitamin E is of no value in coronary heart disease, hypertension, or rheumatic heart disease." This same statement is referred to in reply to a question to the editor[4] and the reply includes an additional part of the sentence: "The original claim that it is of benefit can be attributed to ceremonial therapy." Unfortunately neither of

these quotations carried Katz's[2] whole statement in which he finished the two above sentences with: "The original claim has not been substantiated by any other group. We have not used vitamin E and our opinion is therefore based on a survey of the literature and conversation with other cardiologists."

Thus it can be seen that an eminent and scientific cardiologist condemns a drug and an eminent and scientific journal furthers the condemnation, one without using the drug and the other without a well controlled series on which to base the condemnation. The articles and claims of the proponents and the opponents of vitamin E therapy both seem unscientific to me. I am inclined to agree that the benefits claimed are indeed due to ceremonial therapy, but before others are condemned for being unscientific it would be helpful to all concerned if some competent observers would make a scientifically controlled and comparable series and report their findings. In my own practice I am giving vitamin E only to those who want to try it. To date the most enthusiastic user was a physician—until he had a cerebral thrombosis with hemiplegia while on the drug.

Further critical evaluation of vitamin E in heart disease is sorely needed.

REFERENCES

1. Ball, K. P.: Vitamin E in Angina Pectoris, Lancet *1:*102 (Jan. 17) 1948.
2. Katz, L. N.: Quinidine, J.A.M.A. *136:*1031 (April 17) 1948.
3. Makinson, D. H.; Oleesky, S.; and Stone, R. V.: Vitamin E in Angina Pectoris, Lancet *1:*102 and 116 (Jan. 17) 1948.
4. Vitamin E, in Queries and Minor Notes, J.A.M.A. *136:*810 (March 13) 1948.
5. Vitamin E, in Current Comment, J.A.M.A. *138:*1159 (Dec. 18) 1948.
6. Vogelsang, A., and Shute, E. V.: Effect of Vitamin E in Coronary Heart Disease, Nature, London *157:*772 (June 8) 1946.
7. Vogelsang, A. B.; Shute, E. V.; and Shute, W. E.: Vitamin E in Heart Disease, M. Rec. *160:*279 (May) 1947.

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CARDIAC ASPECTS OF UROLOGIC SURGERY

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IT is apparent that the urologic surgeon dealing with the age group prone to suffer from prostatic and kidney disorders will encounter a high percentage of cardiovascular abnormalities. This influences the type of treatment and prognosis. In an effort to determine the incidence and significance of cardiovascular disease as it bears on urologic surgery, we have critically reviewed 140 consecutive cases in our private practice submitted to major surgery on the genito-urinary tract from January 1, 1946, to December 31, 1947. This paper consists of a statistical analysis and our impressions and conclusions based thereon.

MATERIAL STUDIED

The age incidence, sex, and types of operation are shown in tables 1 and 2.

The average age was 60.8 years, which we believe is appreciably higher than the average age in general major surgery. Except in the apparently healthy younger patients most of the cases were evaluated by a cardiologist preoperatively and appropriate special studies were carried out. Thus, 92 cases had electrocardiograms, and 99 cases had cardiac roentgen-ray studies. A summary of the cardiovascular abnormalities found appears in table 3.

TABLE 1.—*Age and Sex Incidence in 140 Cases of Genito-Urinary Surgery.*

Age Incidence Extremes of Age: 19 to 92 years. Age	No. Cases
90-99	1
80-89	4
70-79	32
60-69	50
50-59	28
40-49	12
30-39	7
20-29	5
1-19	1

Sex Incidence	
Male	124
Female	16
Total	140

TABLE 2.—*Type of Genito-Urinary Operation in 140 Cases.*

Transurethral resection	75	
Suprapubic prostatectomy	13	
Suprapubic prostatectomy and diverticulectomy	4	
Perineal prostatectomy	4	
Total prostatic operations		96
Bladder tumor	6	
Suprapubic cystolithotomy	2	
Suprapubic cystotomy	2	
Suprapubic lithotomy and repair of urethra	1	
Total operations upon the bladder		11
Lumbar nephrectomy	5	
Transperitoneal nephrectomy	5	
Nephrolithotomy and ureterolithotomy	16	
Nephropexy	2	
Plastic procedures	4	
Cutaneous ureterostomy	1	
Total operations on kidneys and ureters		33
Total operations		140

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TABLE 3.—*Cardiovascular Abnormalities in 140 Cases.*

	No. Cases	% of Total
Number of cases	140	100
Clinical heart disease	56	40.0
Hypertension (160/95)	49	35.0
Electrocardiographic study	92	65.7
Abnormal electrocardiograms	51	
Cardiac roentgen-ray studies	99	70.7
Heart enlarged by roentgen-ray	26	
Postoperative deaths	5	3.6

Repeated blood pressure determinations were made in all cases. Numerous circulation time and venous pressure measurements were made in doubtful instances. Many of the patients had been followed for from months to years, preoperatively, and all have been followed postoperatively for as long as possible.

CARDIOVASCULAR FINDINGS

The types of heart disease in relation to the operative procedures are shown in table 4.

TABLE 4.—*Types of Heart Disease Correlated with Operative Procedure.*

Type of Disease	Prostatic	Bladder	Kidney	Total
Hypertensive	21	2	2	25
Arteriosclerotic and senile (includes angina pectoris, myocardial infarction, and bundle branch block)	22	3	1	26
Syphilitic aortic regurgitation	1	0	1	2
Congestive failures (type not determined)	1	0	0	1
Myocardial enlargement (cause undetermined)	2	0	0	2
Clinical heart disease	47	5	4	56 (40%)
No clinical heart disease	49	6	29	84 (60%)
Total cases	96	11	33	140 (100%)

As might be expected, hypertensive and arteriosclerotic disorders were by far the most prevalent and occurred in 37 per cent of the entire group of 140 cases and constituted 91 per cent of the clinical heart disease found. Many of the hypertensive cases also had evidences of arteriosclerotic type of disease but were classified depending upon what seemed to be the prevalent disease. Ten patients had a definite history of angina pectoris, and 8 had a history or electrocardiographic evidence of myocardial infarction before operation. Two other patients are known to have had infarcts later. One of these has recovered completely and returned to work; the other died five months postoperatively of generalized carcinomatosis, and upon postmortem examination showed a tumor embolus obstructing one of the main coronary vessels. Auricular fibrillation was encountered 3 times; premature systoles were recorded clinically or by electrocardiogram in 21 instances. Severe cerebral arteriosclerosis was present in 8 patients; 4 with senile dementia (1 of whom was brought to the hospital from a state institution and returned there after operation); 1 with Parkinsonism; and 3 with residual evidence of cerebrovascular accident. Two patients had pulmonary infarctions postoperatively, confirmed by roentgen ray, chest pain, and bloody sputum, and were treated with anticoagulant drugs with complete recovery.

Six of the 140 patients had two-stage operations, consisting of preliminary suprapubic cystotomy with subsequent resection of the gland or prostatectomy, three times because of severe uremia, once because of the poor condition of the patient with senile dementia, and twice because of congestive failure with acute retention. One patient, not included in this series because of the minor nature of operative procedure (orchidectomy), had a myocardial infarction four days postoperatively which we believed was coincidental but which might have been considered related to the procedure had he undergone a major operation.

Forty-nine cases were encountered in which the systolic blood pressure was above 160 mm. of mercury and/or the diastolic blood pressure was above 95 mm. of mercury. Table 5 shows the blood pressure findings in relation to the type of disease of the urinary tract.

TABLE 5.—*Blood Pressure in Relation to Type of Disease.*

Cases with Hypertension	Prostatic	Bladder	Kidney	Total
Cases with blood pressure over 160/95	37	3	9	49
Systolic of 175+ with a diastolic of 100+	14	2	5	21
Systolic of 170+	3	1	0	4
Diastolic of 100+	10	0	2	12

In evaluating cardiac size, the Ungerleider and Clark chart and the Danzer ratio (using plus 10 per cent and 0.51 as the upper normal limit) were employed. Of the 99 cases studied, 26 showed enlargement of the heart by these methods. In some instances the configuration of the heart was boot-shaped and suggestive of left ventricular enlargement, but these cases were not considered for the purposes of our statistics unless the measurements were abnormal by the criteria described above. An elongated and tortuous aorta was a common finding.

Electrocardiographic findings are shown in detail in table 6. Of the 92 cases so studied 51 were significantly abnormal.

TABLE 6.—*Electrocardiographic Observations.*

	No. Cases
Cases studied with electrocardiogram	92
Cases significantly abnormal	51
Definite left axis deviation	15
Left axis deviation with RST and T wave changes	10
Bundle branch block	9
Old myocardial infarction	5
Abnormal RST or T waves	9
Prolonged PR interval	2
Low voltage QRS	1

Twenty-five showed definite left axis deviation, 10 of which were associated with RST and T wave changes, indicating myocardial damage. Nine addi-

tional cases showed the latter changes without definite axis deviation. Lesser degrees of axis deviation (electrocardiographic axis zero or greater and axis index less than plus 28) were not considered abnormal in this study, being probably due to heart position and frequently seen in this age group. Nine instances of bundle branch block were noted and confirmed with precordial leads, a rather high incidence for a series of this size. In 2 instances the PR interval exceeded 0.22 second. Five cardiograms were characteristic of old myocardial infarction, in 3 of which no definite history of a previous coronary episode could be elicited.

ANALYSIS OF DEATHS

There were 5 postoperative deaths in 140 cases, an incidence of 3.6 per cent (table 7).

TABLE 7.—*Analysis of Deaths.*

Postoperative Deaths	Cases	Deaths
Transurethral resection	75	4
Suprapubic and perineal prostatectomies	21	0
Operations on the bladder	11	1
Operations on the kidney and ureter	33	0
Total	140	5
Causes of Death		
Lower nephron nephrosis following perforation of prostatic capsule		2
Postoperative shock and hemorrhage		2
Congestive heart failure		1

Four of the deaths occurred after transurethral prostatic resection, of which 2 were due to lower nephron nephrosis following perforation of the prostatic capsule.

These patients were 54 and 64 years old, respectively. Both had been considered free of cardiovascular disease on physical examination, and had had negative electrocardiograms and chest roentgenograms. Perforation was recognized in each instance and immediate cystotomy and drainage of the prevesical space was carried out. Despite this, however, both developed oliguria, anemia, and azotemia and they died on the ninth and sixteenth postoperative days, respectively, of the syndrome now known as lower nephron nephrosis. The importance of limiting fluid intake in this type of case was not recognized at the time these deaths occurred and overloading the circulation with intravenous fluids undoubtedly contributed to their death. One of the patients developed paroxysmal auricular fibrillation four days before he died.

The remaining 2 deaths following transurethral resection were in patients aged 73 and 77.

The 73 year old man had a normal physical examination except for slight arteriosclerosis and moderate emphysema. His blood pressure was 120/80 mm. of mercury. His electrocardiogram showed a slight left axis deviation but was not considered abnormal. A roentgenogram of the heart was within normal limits. Spinal anesthesia consisting of 20 mg. of pontocaine in glucose was administered and 20 Gm. of prostatic tissue were resected in forty-five minutes with the McCarthy resectoscope. During operation the blood pressure fell from 140/80 to 100/50, and 6 minims of ephedrine was given intravenously. At the conclusion of the procedure the blood pressure was 120/70. Two hours after return to his room the blood pressure rose to 160/110 and marked hemorrhage occurred, necessitating hemostasis in the operating room. Following this, the blood pressure fluctuated from shock levels up to 180/130. The patient died suddenly on the afternoon of operation.

The 77 year old patient was first seen in March, 1943, with acute retention of urine. The blood pressure at that time was 210/110 mm. of mercury and he showed evidence of congestive failure. Accordingly, a suprapubic cystotomy had been done under local anesthesia, and seven months later he underwent transurethral prostatic resection without incident. He was readmitted three years later because of recurrent prostatic obstruction. At this time general physical examination was normal, and the blood pressure was 134/80. Unfortunately, no electrocardiogram or chest roentgenogram was made. The patient appeared well compensated. Under spinal anesthesia, consisting of 150 mg. of novacaine with the addition of 0.25 Gm. of pentothal at the outset, a transurethral prostatic resection, removing 40 Gm. of adenomatous prostatic tissue, was performed. The blood pressure fell to 62/42. Ephedrine was given and transfusion started. Bleeding was somewhat excessive. However, hemostasis was satisfactory, and the patient was returned to his room apparently in good condition except that the blood pressure had risen to 190/122 mm. of mercury. Subsequently, shock reoccurred in his room and required active therapy. Four hours after operation he had sudden pain in the chest and died.

We have classified these last 2 cases as being primarily due to hemorrhage and shock. In the latter case, coronary accident or pulmonary infarction cannot be excluded, but in any event the terminal event was precipitated by the untoward operative and postoperative course, probably due to excessive anesthetic agent, hemorrhage, and shock.

The fifth case was of a 65 year old white man who was seen complaining of gross hematuria of one year's duration.

Cystoscopy showed a large papillary carcinoma of the bladder with a normal upper urinary tract. Dyspnea and ankle edema had been present for four months. Physical examination revealed a blood pressure of 230/160, tachycardia, pulmonary congestion, and pitting edema of the ankles. The electrocardiogram showed inversion of T 1 and T 4 with depressed RST segments. On roentgen examination the heart was 35 per cent larger than average with evidence of fluid in the right pleural space and of congestive failure. The patient was digitalized and was admitted to the hospital two weeks later after compensation was established. The electrocardiogram then suggested digitalis intoxication, and the patient was nauseated and vomiting; hence digitalis was omitted for four days and then a maintenance dose resumed.

The patient was apparently well compensated; and operation, consisting of suprapubic excision of a papillary carcinoma of the bladder, was carried out under ether anesthesia following pentothal induction. The operative time was one hour and thirty minutes. The blood pressure at the beginning was 230/140 and fell to 180/140, although there was a minimal blood loss. Five hundred cc. of blood was given on the operating table. The immediate postoperative condition was satisfactory. However, two days later the patient developed gallop rhythm, pulsus alternans, tachycardia, and multiple extra systoles. The blood urea rose

from 33 to 70 mg. per 100 cc. On the fifth postoperative day the patient developed pulmonary edema and died. No post-mortem examination was obtained.

While prognosis in this case was poor from the outset, perhaps a longer period of preoperative preparation from the cardiovascular standpoint might have altered the outcome. The degree of hemorrhage from the tumor made intervention seem necessary. The extent and location of the growth indicated open surgical removal rather than a less shocking transurethral procedure.

REVIEW OF LITERATURE

Levine,[4] White,[9] and Wills[10] expressed essentially the same opinion as the result of their experience with cardiac patients subjected to surgery. They agreed that cardiac patients as a group undergo surgical procedures fairly satisfactorily. However, as White stated, "marked congestive failure, very recent coronary thrombosis, severe angina pectoris, and syphilitic aortitis add very appreciably to the operative risk . . . collapse or death during anesthesia or surgical operation is rarely due to heart trouble; it is almost invariably the result of shock from hemorrhage, infection, trauma, or other cause." Marvin[6] pointed out that a history of the patient is more important than a physical examination.

Hermann[2] declared that "certain serious mechanism disturbances as alternation, bundle branch block, and auricular-ventricular block, would cause us to advise against all but inevitable surgical procedures."

Sprague[7] considered that no type of heart disease is, per se, a contraindication to necessary surgery, although congestive failure greatly increases the danger of complications and the mortality from surgery. Obese and chronically septic patients are poor risks for surgery. The behavior of the respiration, pulse, and blood pressure during and after operation is the best clinical guide to both internist and surgeon. After a review of a series of cases he concluded that age is the most important factor in mortality.

Thompson[8] found an incidence of hypertension of 28 per cent among a series of prostatic cases reviewed. Among this same group there was an incidence of heart disease recognized in 23 per cent.

Mallory and others,[5] reporting on 29 cases of prostatic obstruction treated with transurethral resection. and Kretschmer and Butler,[3] reviewing a series of 314 cases treated with transurethral resection, concluded that the prognosis as concerns the cardiac patient with prostatic obstruction is good provided the condition is recognized before operation and proper treatment is instituted.

Baird and Spence[1] have recently pointed out that the syndrome of lower nephron nephrosis is sometimes a reversible process and care should be taken not to overload the circulation until diuresis occurs in this condition.

DISCUSSION

From a review of the literature and from observation of our cases it is apparent that where cardiovascular damage is so prevalent, the status of the patient should be known in advance by the surgeon, internist, and anesthetist, and the preoperative preparation, surgical procedure, anesthesia, and the postoperative care planned accordingly. While it is undoubtedly true that a cardiac patient who is apparently compensated may stand operation without difficulty, it is simply good judgment to know all the facts in advance so that any untoward occurrence may be anticipated and guarded against. Fall in blood pressure due to hemorrhage, shock, or improper anesthesia may precipitate anoxemia and coronary insufficiency and should be prevented, particularly if arteriosclerosis, hypertension, or myocardial damage is present.

CONCLUSION

One hundred and forty major urologic surgical operations have been critically reviewed from the internists' point of view.

Among these cases there was a relatively high incidence of clinical heart disease (40 per cent), hypertension (35 per cent), abnormalities of electrocardiogram (55 per cent of those studied), and roentgen-ray evidence of cardiac enlargement (26.4 per cent of those studied), with a relatively low mortality of 3.6 per cent.

Bundle branch block (9 cases with no deaths) would not seem to add such an increased mortality as has been previously indicated, although the number of cases is too small to be of statistical significance.

The internist and surgeon should watch for evidence of lower nephron nephrosis and avoid excessive use of intravenous fluids in such cases, as recovery is possible in some instances if the patients' circulations are not overloaded.

Close cooperation between the surgeon, the anesthetist, and the internist, with careful evaluation of each case preoperatively, will lower the mortality measurably in a group of patients often thought of as "poor risks."

REFERENCES

1. Baird, S. S., and Spence, H. M.: Lower Nephron Nephrosis; Complication of Transurethral Prostatic Resection, Urol. & Cutan. Rev. *51*:642-645 (Nov.) 1947.

2. Herrmann, G., and Herrmann, L. G.: Cardiac Disorders in Surgical Patients; Criteria Used in Estimating Risk Involved, Texas State J. Med. *30*:183-191 (July) 1934.

3. Kretschmer, H. L., and Stuyvesant, B.: Prostatic Surgery and Heart Disease, J.A.M.A. *136*:441-444 (Feb. 14) 1948.

4. Levine, S. A.: Clinical Heart Disease, ed. 3, Philadelphia, W. B. Saunders Company, 1945.

5. Mallory, M.; Mathers, F.; Orr, L. M.; and Kundert, P. R.: Circulatory Disturbances in Prostatic Hypertrophy, Ann. Int. Med. *18*:835-840 (May) 1943.

6. Marvin, H. M.: Heart During Anesthesia and Operative Procedures, New England J. Med. *199*:547-551 (Sept. 20) 1928.

7. Sprague, H. B.: Heart in Surgery; Analysis of Results of Surgery on Cardiac Patients During Past 10 Years at Massachusetts General Hospital, Surg., Gynec. & Obst. *49*:54-58 (July) 1929.
8. Thompson, G. J.: Clinical Data Concerning Prostatic Resection, J. Urol. *40*:121-128 (July) 1938.
9. White, P. D.: Heart Disease, ed. 3, New York, Macmillan Company, 1944.
10. Wills, I.: Coronary Insufficiency and Operative Risk, J. Urol. *46*:475-479 (Sept.) 1941.

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ABSTRACT OF DISCUSSION

DR. WILL S. HORN, Fort Worth: The patient past 50 who is to undergo a urologic surgical procedure is a challenge alike to the surgeon, the internist, and the anesthetist. The arteriosclerotic heart that otherwise may have a good reserve too often breaks under the strain of surgical shock. Cardiovascular accidents are unpredictable and critical changes in the myocardium may not always be reflected in the electrocardiogram.

Antecedent coronary artery occlusion may not contraindicate a major surgical procedure if adequate time is allowed for healing and development of collateral coronary circulation. On the other hand congestive failure is more prone to lead to death from surgery and such patients should not be operated on until sustained digitalization is achieved and a satisfactory degree of myocardial reserve is restored as determined by exercise tolerance. Often in such patients the wearing of a retention catheter or suprapubic drain during several weeks of relative activity makes them safer operative risks. Likewise the hypertension of those with bladder neck obstruction can be brought to safer levels by making the patient ambulatory for variable periods while wearing a retention catheter.

I agree with the essayists that hearts showing electrocardiographic signs of bundle branch block have an excellent chance to survive surgical procedures per se but when unpredictable complications supervene grave cardiac crises too often follow. It is not the patient with left axis deviation or bundle branch block that I hesitate so much to approve for surgery as it is the one who has had some breathlessness with vague chest pains and who probably has some degree of pulmonary hypertension due to emphysema or pulmonary fibrosis.

Cardiac deaths in elderly patients who undergo surgery are relatively infrequent in well studied and properly supervised risks. A heart that has adequate coronary circulation and good myocardial integrity should survive an uncomplicated surgical procedure. It is insult of renal origin that more often trips the heart and not the surgical procedure itself. Too frequently unfavorable response to the anesthetic and excessive sedation increase the gravity of surgical attack. The risk to the patients can be reduced appreciably by giving whole blood during the operation.

Misjudging a prostatic surgical risk is a sin which the physician's conscience may forgive only if preoperative cardio-vascular-renal evaluation has included electrocardiogram, chest roentgenogram, blood nitrogen determinations, excretory urogram, and frequently liver function studies. A patient with cardiac lesions may be able to withstand the surgery as planned but succumb if unpredictable surgical complications arise. It is important, therefore, that the surgeon carry out his procedure with as much skill and as little trauma as possible in as short a time as is consistent with good anatomic and functional results. To shorten the period of anesthesia and minimize the use of sedation will increase the patient's chance of survival.

Lower nephron nephrosis is primarily a renal problem but as is pointed out in 2 of the cases, the overloading of the circulatory system with fluids is an error of aggressive therapeutic enthusiasm which we are too prone to commit. A daily weight record when possible will help to avoid this pitfall. The cardiac reserve of these patients can best be maintained by giving intravenous glucose in distilled water in amounts needed to replace the insensible losses only (about 1,000 cc. each twenty-four hours) plus enough electrolite-containing fluid to replace estimated losses from the stomach and maintain the blood chlorides at adequate levels. In this way water logging and cardiac overload are prevented. Continuous lavage of the stomach can be employed to reduce the azotemia when anuria supervenes till the renal tubular function has time to recover—usually from five to seven days.

In the field of geriatrics there is no problem that challenges the internist and urologist more than that of the proper handling of bladder neck obstruction. Too many of such patients become serious risks because of cardiac and renal impairment before they reach the surgeon. It is the responsibility of the general practitioner and the internist who sees these men at a time when prophylactic resection of their narrowing bladder necks would reduce the morbidity, add years of productive activity, and reduce the surgical mortality to an irreducible minimum. This should be from one to three decades earlier than presently when removal of from 3 to 10 Gm. of tissue would restore relatively normal outlet resistance to the bladder detrusor mechanism.

ORIENTATION COURSE IN ALLERGY

The American Academy of Allergy, in cooperation with the University of Georgia, will sponsor an orientation course in allergy March 7-11 at the University Medical School in Augusta, Ga.

The course is intended for internists and general practitioners, dermatologists, rhinologists, and other nose and throat physicians. The course content will be practical and directly applicable to the practice of most physicians doing general medicine. It will include lectures and clinical demonstrations on allergens; diagnosis, treatment, etiology, pathology, and immunology of allergy; hay fever, bronchial asthma; allergic rhinitis, atopic dermatitis, and other significant manifestations in the field.

Enrollment is open to anyone interested, at a fee of $50. Inquiries should be addressed to the Executive Office of the Academy, 208 East Wisconsin Avenue, Milwaukee 2, Wis.

HEART RESEARCH FUNDS INCREASE

Financial support for heart disease research reached a new high during 1948 and as 1949 begins more trained scientists are at work in the field and more research is in progress than probably ever before, according to a year-end summary issued by the Life Insurance Medical Research Fund.

During 1948 funds supplied by life insurance companies, which had set up the first private agency devoted entirely to research in the heart field, were supplemented by funds from the American Heart Association and the U. S. Public Health Service under the new National Heart Act. When the programs of the Association and the Health Service are in full swing it is estimated that the total money available annually for research from these three sources will exceed $2,000,000.

It is thought that research during 1949 will continue to center around the three most serious heart diseases, rheumatic fever, arteriosclerosis, and hypertension.

Case Reports

SUBACUTE BACTERIAL ENDOCARDITIS

Laboratory Aspects

HUGH REVELEY, M.D., San Antonio, Texas

PRECISE bacteriologic methods are required in the accurate diagnosis and adequate treatment of subacute bacterial endocarditis. Numerous workers[1, 5] have stressed the view that the exact identity of the invading organism and its sensitivity to penicillin must be known. The dosage of penicillin is based on the penicillin sensitivity and must be varied if the organism alters its resistance.

Rhoads[11] has suggested that the term "subacute bacterial endocarditis" be abandoned in favor of the term "infectious endocarditis" qualified by the name of the responsible microorganism. He stated that in more than 90 per cent of cases the organism causing subacute bacterial endocarditis is a nonhemolytic streptococcus of either the alpha or gamma type.

MacNeal[9] has urged a more intimate study of the nonhemolytic streptococci. In 31 cases of endocarditis he isolated the following organisms: Strep. salivarius in 13, Strep. equinus in 7, Strep. fecalis in 6, Strep. bovis in 3, and unspecified Strep. viridans in 2.

TABLE 1.—*Suggested Dose of Penicillin Based on Sensitivity of Organism**

Penicillin Sensitivity (unit/cc. of medium)	Daily Dose by Constant Drip (units)	Average serum level (unit/cc. of serum)
.025 or less	500,000	.2
1.0	1,000,000	.56
5.0	2,000,000	1.6—2.24
1.0	5,000,000	3.2
5.0	10,000,000	6.66

*Modified after Dawson and Hunter.[3]

Loewe[7] and his associates have identified a highly resistant strain of nonhemolytic streptococcus which they term Strep. s. b. e. It was isolated in 39 per cent of their cases and accounted for a large percentage of their treatment failures.

The penicillin sensitivity of these various strains of nonhemolytic streptococci varies widely. MacNeal[9] found that the strains of Strep. salivarius were sensitive to as little as .01 unit of penicillin per cubic centimeter of culture medium, but that Strep. fecalis strains grew in a medium inoculated with 5.0 units per cubic centimeter. He prepared a specific bacteriophage which readily lysed the strains of Strep. fecalis, but Strep. salivarius strains were not easily lysed by any specific bacteriophage.

Read before the Section on Clinical Pathology, State Medical Association of Texas, Annual Session, Houston, April, 1948.

ETIOLOGIC DIAGNOSIS

A positive blood culture is the first requisite for making an etiologic diagnosis of a case of subacute bacterial endocarditis. The penicillin sensitivity test employed at Santa Rosa Hospital, which is considered a standard procedure, has been described by Mattman.[10]

The clinical pathologist may often be asked how much penicillin should be given. In treating bacterial endocarditis the goal should be to maintain a blood level of penicillin 5 to 10 times greater than the penicillin sensitivity of the organism. Table 1 gives suggested doses according to the sensitivity of the organism.[3] If the estimated dose of penicillin does not sterilize the blood, the organism should be tested again to determine any increase in its resistance. Penicillinase should be added to culture media when blood cultures are drawn from patients who are receiving penicillin.

Abstracts of 2 cases which illustrate the role of the laboratory in the diagnosis and treatment of subacute bacterial endocarditis follow.

CASE REPORTS

CASE 1.—A 39 year old white woman was admitted to Santa Rosa Hospital on December 21, 1946. She had noted weakness, dizziness, and nausea since October 26. An afternoon fever appeared and it did not respond to sulfonamides or average doses of penicillin. Physical examination revealed a chronically ill white woman and was essentially negative except for the presence of fever of 102 F. The total red cell count was 3,500,000 with 71 per cent hemoglobin.

On December 24 she ran fever as high as 105.2 F. A blood culture drawn during the course of a chill preceding the elevation of temperature was positive for an unspecified Strep. viridans. After a second blood culture was drawn on December 25 penicillin was begun in a dosage of 1,000,000 units a day. The penicillin sensitivity of the organism was found to be .1 unit per cubic centimeter of medium; therefore the dosage of penicillin was not changed.

A generalized rash appeared on January 2 but this was alleviated by Benadryl. The patient improved remarkably. She became afebrile and after thirteen days of treatment the penicillin was discontinued. She remained afebrile and was dismissed from the hospital and sent home on January 11, 1947. While she was at home she developed pain in the left leg and the penicillin was resumed. She failed to improve and was readmitted to the hospital on January 25.

On this second admission she was acutely ill. The heart exhibited a harsh systolic blowing murmur at the apex and the aortic area. There were basal rales in the chest and the liver was enlarged. On the left calf there was lymphangitis and an ulceration. The previous regime of 1,000,000 units of penicillin daily was resumed. Blood cultures were repeatedly negative throughout this period of hospitalization.

The patient was entirely afebrile but ran a steady downhill course. Without continuous oxygen she was dyspneic and cyanotic. She developed embolic phenomena in all extremities, abdominal pain and distention, tarry stools, and finally jaundice. After a total dosage of 50,000,000 units of penicillin was given it was discontinued on March 10 and on March 20 the patient died.

At autopsy the body was icteric and exhibited many purpuric areas. The liver was enlarged and was nutmeg in appearance. The gastrointestinal tract was infected throughout with a fibrinous exudate over the sigmoid and rectum. The left kidney had an infarcted area 1.5 cm. in diameter. The lungs showed areas of consolidation. The heart exhibited a vegetation on the mitral valve. Cultures of this vegetation were negative.

CASE 2.—A 30 year old white woman was admitted to Santa Rosa Hospital on October 12, 1946. She had first seen a physician on September 17 when she complained of fatigability, listlessness, and loss of 9 pounds of weight in the previous month. On October 3 she developed fever to 103 F. and was put on sulfamerazine. After four days when her fever dropped, the dose of sulfamerazine was reduced, and her fever rose to 102 F. Hospitalization was advised.

Physical examination on October 12 revealed a temperature of 101.4 F. There was a soft, blowing systolic murmur in the fifth interspace to the left of the sternum. The liver was not enlarged and the spleen was not palpable. No petechiae were noted. The red cell count was 3,900,000 with 74 per cent hemoglobin. On the third hospital day the blood culture was reported positive for a streptococcus which later proved to be Strep. fecalis. On October 15 penicillin therapy was begun. After two doses of 25,000 units, the penicillin was given in doses of 50,000 units every three hours for twenty-four hours; then it was increased to 100,000 units every three hours. Forty-eight hours after treatment was begun it was learned that the organism required .5 units of penicillin per cubic centimeter of medium to inhibit growth. Intravenous drip therapy of 1,000,000 units every eight to fifteen hours was begun. Within twenty-four hours the blood culture was negative.

On the tenth day the culture became positive again. The dosage was increased to 4,800,000 units a day given as 200,000 units every hour, but the culture remained positive on the fourteenth and eighteenth days. A recheck showed that the organism had increased its resistance to penicillin tenfold; it required 5.0 units of penicillin per cubic centimeter to inhibit growth. This occurred when the dose dropped to 1,000,000 units in twenty-three hours—an average hourly dose of 40,000 units.

A subplant had been sent to the New York Post-Graduate Medical School and Hospital on October 18. The bacteriology department there verified the identity of the organism as a Strep. fecalis. They found that it was susceptible to their stock bacteriophage and prepared a specific bacteriophage. Subsequently the New York laboratory verified the increased resistance of the organism.

Bacteriophage therapy was begun on the nineteenth day. Four cc. of bacteriophage were given with 200,000 units of penicillin every two hours. After thirty-six hours the blood culture was still positive. On the twenty-fourth day a free supply of penicillin became available* and a dosage of 12,000,000 units a day was instituted. Three days later sodium benzoate was added to prolong maintenance of serum levels of penicillin. Finally the blood culture became negative after five days of massive doses of penicillin and twenty-five days from the onset of therapy.

The blood cultures remained negative as a dosage of 9,000,000 to 18,000,000 units of penicillin a day was continued. After three negative blood cultures were obtained over a period of twenty days treatment was stopped. A total of 338,970,000 units of penicillin had been given. The culture remained negative for three more weeks and after seventy days of hospitalization the patient was dismissed. She has remained clinically well for sixteen months; the last blood culture of March 14, 1948, was still negative.

DISCUSSION

All of the problems presented in these 2 case reports have been discussed by other workers, notably Bloomfield and Halpern.[2] They reported a case similar to case 1 in which death from cardiac failure occurred after sterilization of the blood. They postulated that the deformities and destruction of valves which seem to go hand in hand with the absorption of vegetations under penicillin therapy may account for cardiac failure.

The use of massive doses of penicillin is not new. Loewe and others[7] used a total of 596,670,000 units of penicillin in a case of endocarditis infected with an organism which required 30 units of penicillin per cubic centimeter of medium to inhibit growth. Hagedorn and Scheifley[6] have outlined the ultimate cure of a patient with Strep. fecalis endocarditis whose course was similar to that of case 2. They stressed the view that the physician should not be dissuaded from treating endocarditis when the organism is resistant to ordinary doses of penicillin. In no case should the condition be considered hopeless. Sedimentation rates, leukocyte counts, fever, and the patient's sense of well-being may be misleading in evaluating the effectiveness of treatment. Sterile blood cultures are the only reliable criterion of cure.

The apparent cure in case 2 was made possible only because of careful bacteriologic controls. It is the responsibility of the clinical pathologist tactfully to guide the clinican who is managing a case of endocarditis. In the early days of penicillin therapy, four or five years ago, the penicillin sensitivity of an organism was determined to decide whether peni-

*Dr. Stanton M. Hardy of Lederle Laboratories Division, American Cyanamid Co., provided this penicillin.

cillin should be given at all or not. The supply of this precious antibiotic was limited then and it could not be wasted on infections due to resistant organisms. Today the supply of penicillin is apparently limitless. The penicillin sensitivity of an organism must be determined in order to know how much penicillin to give.

SUMMARY

In the management of subacute bacterial endocarditis the exact identity of the organism and its sensitivity to penicillin must be known in order to determine the dose of penicillin.

The bacteriologic techniques employed in managing a case of endocarditis are outlined.

A case is presented in which the disease terminates fatally in cardiac failure and with embolic phenomena in spite of adequate penicillin therapy.

A second case demonstrates that under inadequate treatment organism resistance to penicillin may increase but that massive doses of penicillin may effect an apparent cure.

REFERENCES

1. Anderson, D. G., and Keefer, C. S.: Treatment of Nonhemolytic Streptococcus Subacute Bacterial Endocarditis with Penicillin, M. Clin. North America *29:*1129-1153 (Sept.) 1945.

2. Bloomfield, A. L., and Halpern, R. M.: Penicillin Treatment of Subacute Bacterial Endocarditis; Some Problems, J.A.M.A. *129:* 1135-1141 (Dec. 22) 1945.

3. Dawson, M. H., and Hunter, T. H.: Treatment of Subacute Bacterial Endocarditis with Penicillin; Second Report, Ann. Int. Med. *24:*170-185 (Feb.) 1946.

4. Flippin, H. F.; Mayock, R. L.; and White, W. L.: Treatment of Bacterial Endocarditis, M. Clin, North America *30:*1233-1248 (Nov.) 1946.

5. Gerber, I. E.; Shwartzman, G.; and Baehr, G.: Penetration of Penicillin into Foci of Infection, J.A.M.A. *130:*761-764 (March 23) 1946.

6. Hagedorn, A. B., and Scheifley, C. H.: Subacute Bacterial Endocarditis: Case Report, Proc. Staff Meet., Mayo Clinic *23:*14-16 (Jan. 7) 1948.

7. Loewe, L.; Plummer, N.; Niven, C. F., Jr.; and Sherman, J. M.: Streptococcus s. b. e. in Subacute Bacterial Endocarditis, J.A.M.A. *130:*257 (Feb. 2) 1946.

8. Loewe, L.; Rosenblatt, P.; and Alture-Werber, E.: Refractory Case of Subacute Bacterial Endocarditis Due to Veillonella Gazogenes Clinically Arrested by Combination of Penicillin, Sodium Para-Aminohippurate, and Heparin, Am. Heart J. *32:*327-338 (Sept.) 1946.

9. MacNeal, W. J., and Blevins, A.: Bacteriological Studies in Endocarditis, J. Bact. *49:*603-610 (June) 1945.

10. Mattman, L. H.: Penicillin and Streptomycin Sensitivity of Miscellaneous Bacteria and Fungi, Am. J. M. Technol. *13:*159-168 (July) 1947.

11. Rhoads, P. S.: Subacute Bacterial Endocarditis: Etiologic Consideration and Prophylaxis, M. Clin. North America *32:*176-186 (Jan.) 1948.

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ABSTRACT OF DISCUSSION

DR. WALTER L. SHEPEARD, McAllen: This paper reveals that many failures in the treatment of bacterial endocarditis may be due to inadequate doses of specific antibiotic. It proposes a means of determining the dosage necessary to expect success with therapy. It is based upon sound logic, and after the method has been used in a large series of cases its effectiveness can be critically evaluated.

The results of the method as applied to the reported cases reveal that tremendous dosages of penicillin (12,000,000 units per day in one case) are needed in some types of infection. Also, it is interesting to note the use of bacteriophage. This phenomenon, not completely understood as yet, has a place in the therapy of selected infections.

For some time I have suspected another factor in the failure of certain cases to respond to specific therapy. In these cases mycotic aneurysms were invariably found at autopsy. It was assumed that the seeding of the parenchymatous tissue with infected material furnished a focus for reinvasion of the blood stream and reinfection of original sites of infection because of their innate or acquired predilection for parasitism by the invading organism. Had these cases been handled as Dr. Reveley has outlined, suspicion of inadequate therapy would be removed. Similar cases will no doubt continue to occur in patients who are subjected to treatment late, or develop as a result of inadequate early treatment. Speculation along this line can be revived only if the phenomenon is found in autopsies of cases that fail to respond to adequate therapy based upon Dr. Reveley's methods.

Like all progressive papers, this paper raises certain problems, particularly for the small laboratory that does only an occasional blood culture. The smaller laboratory is most often located in a small community and the case of suspected endocarditis presents itself to the laboratory usually after the patient has had, or is having, some specific therapy. Then to grow a Bacillus subtilis or other readily available organism of high penicillinase productivity and to Seitz filter it for the penicillinase is a somewhat haphazard procedure with uncertain yield. This enzyme has not as yet been put on the market for the small diagnostic laboratories. However, the penicillin manufacturing industry has developed various methods of producing and standardizing penicillinase substance for use in testing the sterility of their finished product.

The method of Morgan and Campbell, using Bacillus cereus, as reported in the *Journal of Biological Chemistry,* [*169:*337 (July 1) 1947], holds the greatest promise of a stable lyophilized product suitable for marketing to the small laboratory for neutralizing penicillin in body fluids and exudates being subjected to cultured study. A rough method apparently has been to use 1 unit of penicillinase to each cubic centimeter of blood or fluid cultured, this being sufficient to destroy expected concentration of penicillin present.

Fort Worth Opens Health Center

The City Health Department, Fort Worth, opened a North Side Health Center on January 4. The clinic will be open each Tuesday and Wednesday for "well child" conferences, and immunization injections will be given each Wednesday. The clinic is staffed by city health doctors and nurses, according to the Fort Worth *Star-Telegram.*

New Science Journal Planned

A new *Journal of Science* will be published this year by the Texas Academy of Science, according to information in the Houston *Chronicle.* The officers of the Academy, meeting in December, decided to issue a quarterly journal which will replace the annual publication of papers and proceedings of the organization.

INJURIES TO THE LOWER URETERS SECONDARY TO PELVIC SURGERY

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INJURIES to one or both ureters are infrequent complications of pelvic surgical procedures in both sexes. Because of the far greater incidence of pelvic operations in the female, the literature has dealt mostly with the injuries to the female ureter; but these injuries occur in the male as complications of diverticulectomy, repair of rectovesical fistulas, resection of the large bowel, suprapubic and perineal prostatectomy, transurethral prostatic resection, seminal vesiculectomy, and instrumental procedures in the lower ureter.

OCCURRENCE OF INJURIES

A review of the literature dealing mostly with gynecologic procedures reveals the incidence of ureteral injuries to be about 1 to 3 per cent (table 1). Because ureteral injury is a complication with serious sequalae to both patient and doctor, many cases may not be reported, and the actual incidence may be higher than is apparent. Table 2 shows some of the more common procedures associated with ureteral injuries that have been reported in the literature. Total hysterectomy leads the lists, followed by the radical Wertheim operation and operative procedures in the adnexal region of the female pelvis. The Wertheim operation suffered in popularity for a time, but stimulated by the work of Meigs and others, it is now being used as the treatment of choice in many cases. The cases injured during the Wertheim procedure were reported by Brown[2] in 1934 and Feiner[7] in 1938. Feiner's cases were operated upon from 1925 to 1936. Feiner[7] reported 35 cases of ureteral injury occurring during vaginal hysterectomy. The percentage of ureters injured during vaginal hysterectomies may be higher than during abdominal hysterectomies, but the total number injured is lower by the vaginal route because most of the operators utilize the abdominal route for the majority of their cases.

The percentage of ureters injured during subtotal hysterectomy is much less than during those procedures requiring dissection deep in the pelvis. A few cases of ureteral injury have been reported during resection of the rectum and rectosigmoid and during obstetric procedures. It is not uncommon for the ureter to be injured during urologic instrumental procedures, especially cystoscopic extraction of calculi from the lower ureter and dilatation of lower ureteral strictures. This hazard is increased by the use of semi-rigid and metal tipped instruments in the ureter.

TABLE 1.—*Incidence of Ureteral Injuries.*

Reference	No. Cases	Types of Cases	No. Ureteral Injuries	% Ureteral Injuries	Remarks
Stevens[16]	27,708	General hospital admissions	5	<1	San Francisco Hospital
Stevens[16]	1,086	Pelvic surgery, gynecology	4	<1	Stanford University Hospital
Feiner[7]	Review of 11 yr. period	Pelvic surgery, gynecology	260	3	
Leventhal[10]	Not stated	Not stated	Not stated	1-3	
Herman[8]	7,966	Pelvic surgery, gynecology	4	<1	
Adam (cited in Herman[8])	Review of literature to 1943	Pelvic surgery, gynecology	782		
Newell[12]	3,144	Pelvic surgery, gynecology	15	<1	23 yr. study at Barnes Hospital

The close association of the pelvic ureter with the other pelvic structures in both sexes makes it susceptible to injury in pelvic surgical procedures. The ureter enters the pelvis at the pelvic brim near the bifurcation of the common iliac artery and courses downward, retroperitoneally, in front of the hypogastric artery. In the female, the uterine artery, one of the branches of the hypogastric, lies lateral and a little in front of the ureter and crosses in front of the ureter at the point where the ureter passes beneath the base of the broad ligament. This is just above the lateral fornix of the vagina and 1 or 2

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cm. lateral to the upper part of the cervix. The ureter then courses medially and inferiorly in front of the antero-lateral aspect of the upper part of the vagina to enter the base of the bladder. At this point the two ureters are separated from each other by about 2 inches. In the male, the vas deferens crosses in front of the ureter at the level of the ischial spine. The ureter then courses medially and inferiorly to enter the base of the bladder just in front of the fundus of the seminal vesicle.

TABLE 2.—*Surgical Procedures Associated with Injury to the Lower Ureter as Reported in the Literature.*

	Intraligamentous Cysts	Excision of Rectum and Rectosigmoid	Vaginal Hysterectomy	Subtotal Hysterectomy	Salpingo-Oophorectomy	Vesico-Vaginal Fistulas	Plastic Operation on Anterior Vaginal Wall	Obstetric Procedures	Wertheim Operation	Pelvic Inflammatory Disease	Cystoscopy and Ureteral Instrumentation	Total Hysterectomy—Abdominal	Pelvic Operations—Type Not Stated	Suprapubic Prostatectomy	Total
McIver[11]	2	2										5			9
Feiner[7]	19		35	44	24	Mentioned, no cases reported	Mentioned, no cases reported	6	54	Mentioned, no cases reported		49	5		236
Stevens[16]	2				1						4	5	4		16
Newell[12]												15			15
Brown[2]	1								5			4			10
Jenkins[9]												2			2
Herman[8]		1		1	1			1			38	4		1	47
Ockerblad[14]												1			1
Total	24	3	35	45	26			7	59		42	85	9	1	336

AVOIDING INJURIES

Novak[13] has described five danger zones for pelvic surgeons to consider: (1) where the ureters cross the iliac vessels, (2) ovarian fossae, (3) intraligamentary portion of the ureter, (4) where the ureter is crossed by the uterine artery, and (5) intravesical ureter in the repair of vesico-vaginal fistulas.

Novak[13] has also laid down six rules to aid surgeons in avoiding ureteral injury:

1. A surgeon should not undertake to perform a gynecologic operation unless he has a thorough knowledge of the anatomy of the ureters, their possible anomalies, and their possible dislocations resulting from scars, tumors, and so forth.

2. The surgeon should never lose his presence of mind in case of unexpected bleeding, nor should he try to stop bleeding by blind and hasty application of clamps or ligatures.

3. A strand of tissue should never be clamped, cut, or ligated before its identity is definitely established.

4. The ureters should be exposed and their exact location ascertained before the operation proceeds to the point where the ureters are endangered.

5. Before surgery is performed the patient should have a cystoscopy and excretory urograms to determine the anomalies and the course of the ureters.

6. All ligatures and suture material should be of easily absorbable material.

Ewell[6] recommended the routine use of preoperative excretory urograms and indwelling ureteral catheters as prophylactic measures. The majority of authors agree with Ewell on the value of preoperative study with excretory urograms, but disagree in the use of indwelling ureteral catheters to aid in locating the ureters at the time of surgery. Leventhal and others[10] expressed the belief that indwelling ureteral catheters give the surgeon a false sense of security. One of us[15] (M. K. O'H.) reported 1 case in which a normal ureter was ruptured during the preoperative insertion of a ureteral catheter. The passage of catheters up the ureters may predispose to other complications in the upper urinary tract, increase the risk of the operation, and lengthen the convalescence. Ureteral catheterization, if carefully and properly done, is usually a harmless procedure, but the majority of experienced cystoscopists have encountered complications such as infection, ureteral colic, and suppression of the urinary output. Even though these complications are rare, they are serious enough to condemn the procedure for routine preoperative use. The majority of gynecologists are in agreement with Novak[13] and Drexler[5] that the safest procedure is to locate the pelvic ureters and keep them under constant vision during the operation.

Novak's[13] plea for the use of easily absorbable suture material is not justified in view of the experimental work reported by Caulk and Fischer.[3, 4] They demonstrated that no. 2 plain catgut is not absorbed for three weeks and the surgeon cannot rely upon absorption of the suture and reopening of the ureteral lumen for the reestablishment of drainage from the involved kidney in the case of a ligated ureter. They further explained that a ligated ureter remains completely occluded for about eight weeks, or about five weeks longer than it takes a no. 2 plain catgut suture

to absorb. The epithelium at the site of the ligation is destroyed except for an isolated island here and there. Recanalization occurs as the result of the epithelium growing into the ligated area from above and below, aided by centrifugal growth in the isolated islands of epithelium in the ligated area. They believed that a ureter completely obstructed for two weeks would result in total and irreversible loss of renal function, and they recommended that these cases be handled by instituting nephrostomy drainage at once until the continuity of the ureteral lumen has been reestablished. They reported a patient with bilateral ureteral ligation who recovered after bilateral nephrostomy on the eighth postoperative day.

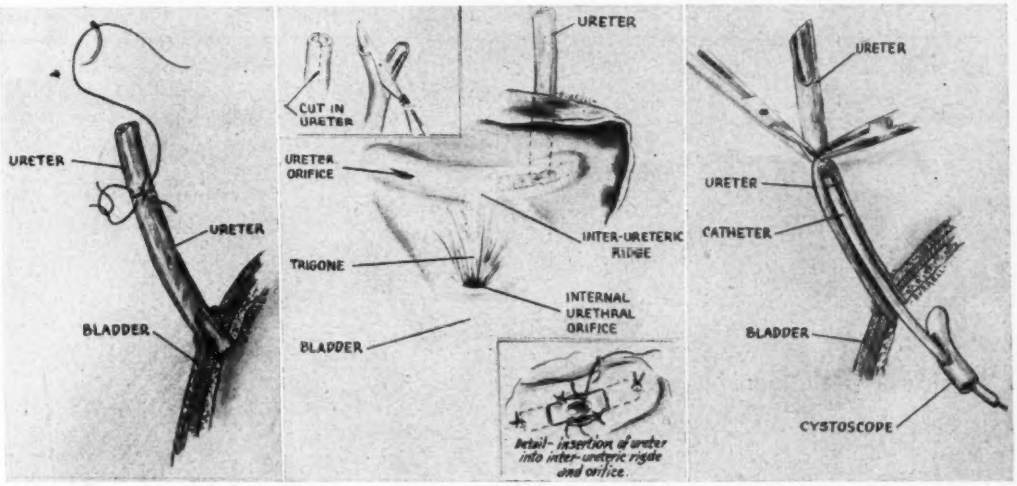

FIG. 1. Left. Drawing illustrating the technique of end to end anastomosis of the ureter. Center. Drawings illustrating the technique of reimplantation of a ureter into the bladder. Right. Drawing illustrating the technique of deligation of the ureter.

MANAGEMENT OF INJURIES

The various procedures utilized in the management of ureteral injuries are nephrostomy, nephrectomy, ureterostomy, pyelostomy, end-to-end anastomosis of ureter, reimplantation of ureter into the bladder, uretero-intestinal implantation, cutaneous ureterostomy, ureterovaginal implantation, deligation, and autonephrectomy.

Undoubtedly many lives were saved because Caulk and Fischer[3, 4] in 1915 urged the medical profession to perform nephrostomies as early as possible in all cases of ureteral ligation and injury. The procedure is still widely used, but to some extent has been replaced by more conservative procedures. Improvements in surgical techniques and anesthesia during the last thirty years have increased the period of time patients can safely be subjected to an operation. This allows the alert surgeon who recognizes a ureteral injury when it is inflicted, time to repair it by one of the more conservative techniques.

McIver[11] recommended the use of a T tube for end-to-end anastomosis. The end-to-end anastomosis (fig. 1 left) is usually made over a ureteral splint and nephrostomy or high ureterostomy drainage provided. We have performed end-to-end anastomosis over large ureteral catheters, French no. 6 to 10, inserted through a cystoscope and left indwelling for about eight weeks. This procedure has proved successful and nephrostomy or ureterostomy drainage has not been done in our cases.

The majority of authors recommend reimplantation of the ureter into the bladder (fig. 1 center) if the injury is low enough to permit the ureter to reach the bladder. Ockerblad[14] has devised an ingenious method of implanting short ureters into the bladder by utilizing a flap of bladder wall fashioned into a tube to bridge the gap between the ureter and bladder.

Many cases of unilateral injury are not recognized until some time after the injury and after definite changes have taken place in the upper ureter and kidney. Many of these cases will have to be nephrectomized because of sepsis and irreversible loss of renal function. Some patients will develop fistulas, as did 3 of ours, and later the ureter may recanalize, as it did in 1 of our cases. Secondary to the obstruction, at the site of injury, hydronephrosis and a large tortuous dilated ureter will develop. If the degree of infection and the remaining renal function will justify conservative surgery, this tortuous ureter can be straightened out and it will be more than long enough

to reimplant into the bladder, as we did in 3 of our cases.

Barrett[1] has suggested ureterocolostomy in high ureteral injuries, but this procedure will not give the good functional result of an end-to-end anastomosis. Cutaneous ureterostomy and vaginal ureterostomy have been mentioned, but the functional result would be unsatisfactory and these procedures should be used rarely, if at all.

Deligation associated with nephrostomy drainage has been advocated by numerous authors. Thorek,[17] Drexler,[5] and Ewell[6] recommended immediate nephrostomy followed by deligation at a later date. Caulk and Fischer[3, 4] considered deligation an unnecessary operative hazard, preferring to handle their cases of nephrostomy and then waiting for recanalization of the ligated ureter. They also objected to the use of bougies to dilate the strictured recanalized ureter on the grounds that this was unnecessary trauma. Feiner[7] recommended immediate deligation (fig. 1 right) in preference to the nephrostomy. In 1 case of bilateral ligation, we performed bilateral deligation immediately and inserted ureteral catheters. Autonephrectomy, resulting from complete occlusion of the ureter, does occur, but cannot be relied upon to occur with any degree of consistency. Many of these cases will develop fistulas later, and others may require nephrectomy for the relief of pain or sepsis.

CASE REPORTS

CASE 1.—L. A., a 21 year old white man, on June 29, 1946, complained of recurring attacks of dysuria for the past eighteen months. A recent excretory urogram revealed a large diverticulum on the right side of the bladder. The remainder of the history was irrelevant. The physical examination was essentially normal. The blood pressure was 132 systolic and 85 diastolic. Rectal examination of the prostate and seminal vesicles revealed normal structures. The urinalysis was normal except for an occasional blood cell. The blood count was normal. The blood nonprotein nitrogen was 32.2 mg. per 100 cc. A routine chest roentgenogram was normal. An excretory urogram revealed excellent renal function and normal pyelograms bilaterally (fig. 2 left). However, there was a large diverticulum above the right side of the bladder. A retrograde cystogram confirmed this observation. Cystoscopy revealed a contracted bladder neck with several incrustations on it. The bladder showed evidence of chronic infection and was coarsely trabeculated. On the right side was the opening of a large diverticulum, and the right ureter emptied into this diverticulum. On the left side, just above the ureteral orifice, was the opening of a smaller diverticulum. Urethroscopy revealed a high prostatic median bar.

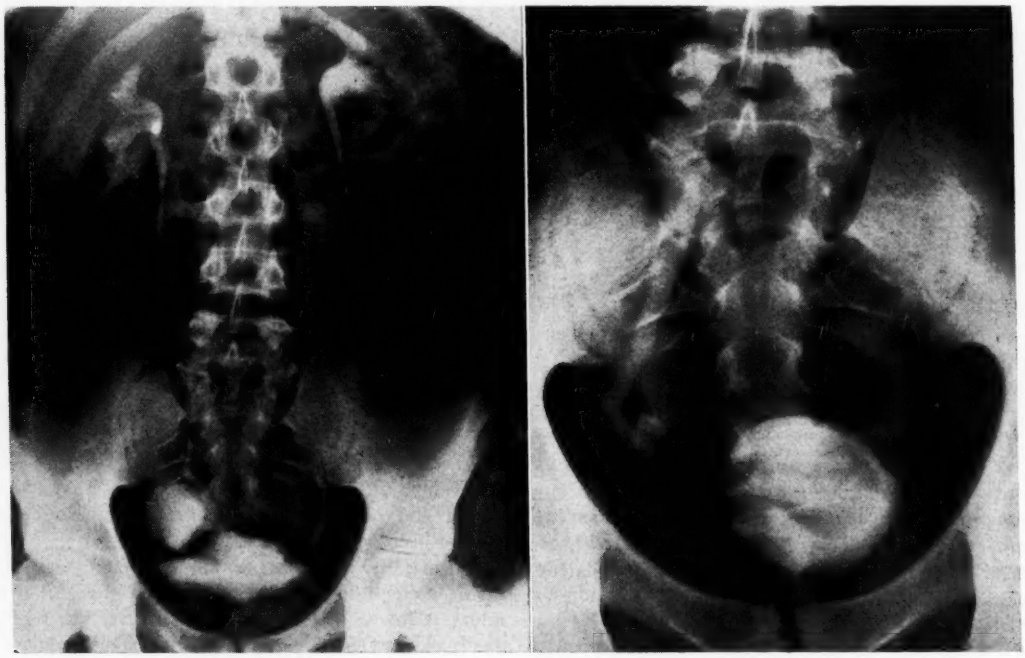

FIG. 2. Left. Preoperative intravenous pyelograms showing a large diverticulum with the right ureter emptying into it in case 1. Right. Postoperative intravenous pyelogram showing the reimplanted right ureter separated from the bladder in case 1.

On July 11, 1946, suprapubic cystotomy was performed by one of us (M. K. O'H.). The large diverticulum on the right side was excised and the right ureter reimplanted into the bladder. The median bar was excised. A ureterostomy tube was left in the right ureter and cystotomy drainage provided. The postoperative course was uneventful. On the

thirteenth day the ureterostomy tube was removed. On the twentieth day, the patient was sent home, although the cystotomy wound was still draining. The drainage continued. Cystoscopy on the thirty-seventh postoperative day revealed a great deal of edema about the ureteral opening on the right side. An excretory urogram on the forty-first postoperative day (fig. 2 right) revealed the transplanted ureter to be pulled loose and retracted away from the bladder.

The patient was readmitted to the hospital and on the forty-fourth postoperative day surgery was again performed. The retracted right ureter was found and reimplanted into the bladder with a small catheter serving both as a splint and a ureterostomy tube. Suprapubic cystotomy drainage was provided. The postoperative course was uneventful. The ureterostomy tube was removed on the twenty-third postoperative day. The patient was discharged from the hospital on the thirty-third postoperative day. Shortly afterwards he returned to work and has been symptom free since. He still has a few pus cells in the urine. Twenty-two months later cystoscopy was performed and the right (transplanted) ureter was catheterized. The urinalysis was normal. Renal function, as determined by indigo-carmine excretion, was normal. A retrograde pyelogram revealed a normal right pyelo-ureterogram.

Comment.—This reimplanted ureter probably pulled loose from the bladder because it was improperly sutured or else was so tense that the blood supply was poor.

CASE 2.—Mrs. O. W., a 38 year old white woman, was first seen by two of us (M. K. O'H. and A. W. M.) on November 30, 1946, complaining of leaking urine through her vagina for the past seven weeks. About two months before, an abdominal total hysterectomy had been performed. Following the operation she suffered a great deal from abdominal distension and pain in the lower abdomen. On the twelfth postoperative day she suddenly passed urine through her vagina and her pain subsided. The physical examination was essentially normal. The blood count revealed a mild secondary anemia. The urine was loaded with pus cells and had 4 plus albumin. Smear and culture of the urine were negative. The blood nonprotein nitrogen was 20 mg. per 100 cc. Cystoscopy revealed a normal bladder except for generalized chronic inflammation. Both ureters were catheterized with ease. There was no obstruction on the right. On the left an impassable obstruction was encountered at 5 cm. A preliminary roentgenogram was negative for calculi. Excretory urograms revealed a normal pyelo-ureterogram on the right side. On the left side was a moderate hydronephrosis and hydro-ureter extending down to near the pelvic brim.

Surgery was performed by one of us (M. K. O'H.) on December 6, 1946. A left oblique incision was made into the lower abdomen. The entire operation was retroperitoneal. The ureter was found to be greatly dilated above the point of constriction. It was reimplanted into the bladder and suprapubic drainage was established. A rubber catheter was left indwelling in the left ureter for fifty-nine days. The patient was discharged from the hospital on the thirty-sixth postoperative day. The convalescence was uneventful. Four months after the operation she had a cystoscopy in the office and the transplanted ureter was catheterized with a French no. 8 catheter. There was no obstruction present. One year after the operation an excretory urogram was normal bilaterally (fig. 3 left) and the patient was asymptomatic.

Comment.—This ureter was probably ligated at the time hysterectomy was performed and instead of an autonephrectomy developing a uretero-vaginal fistula formed. This resulted in a hydronephrosis, but renal function was not permanently impaired, as evidenced by the fact that the kidney is now normal. Had this injury been recognized at the time it was incurred, an end-to-end anastomosis could

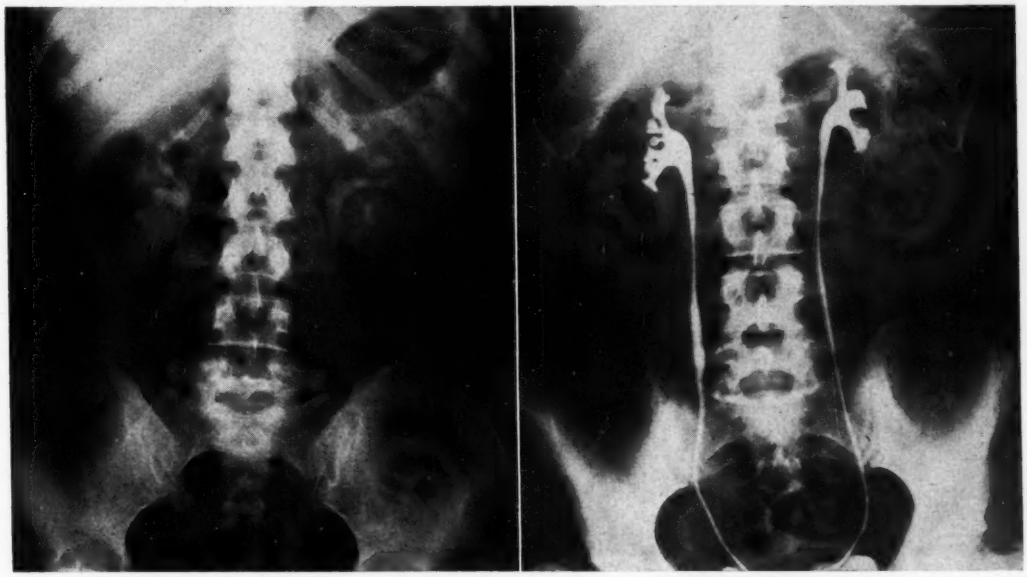

FIG. 3. Left. Excretory urogram made one year following reimplantation of the left ureter into the bladder in case 2. Right. Retrograde pyelograms made on the ninety-fourth postoperative day following bilateral ureteral deligation in case 3.

have been done and the period of morbidity would have been less.

CASE 3.—Mrs. A. M., a 37 year old white woman, was operated upon on October 20, 1947. Total hysterectomy was performed because of multiple uterine fibroids. Both ovaries, tubes, and the appendix were also removed. One of the fibroids was imbedded deep in the cul-de-sac and in removing it, considerable difficulty was experienced in controlling the hemorrhage. To control some of the bleeding points, the surgeon found it necessary to transfix some of the ligatures. The operation required three hours and twenty minutes. The patient received intravenous glucose and blood plasma during the operation and 900 cc. of whole blood following. Eleven hours later she had not passed any urine, and two of us (J. R. P. and M. K. O'H.) were called in consultation.

Cystoscopy and ureteral catheterization revealed an obstruction in both ureters 3 to 4 cm. above the bladder. The abdominal wound was reopened and both ureters were found ligated just above the bladder. The right ureter was intact, but the left had been incised. Deligation was performed and the cystoscopist passed French no. 6 ureteral catheters by the points of obstruction and into the renal pelvis on each side. The opening in the left ureter was not sutured. The area was drained with Penrose drains and the abdominal wound closed. The ureteral catheters were placed inside a French no. 26 Foley catheter and left indwelling in the bladder. On the twenty-fifth postoperative day the French no 6 ureteral catheters were removed and French no. 7 ureteral catheters were passed up both ureters and left indwelling. Retrograde pyelograms were normal bilaterally. Some urine drained through the abdominal wound for twenty-eight days; then it ceased altogether. However, from the first postoperative day the patient passed a large amount of urine from the urethral catheter. She left the hospital on the forty-third postoperative day. The urethral and ureteral catheters were removed on the fifty-sixth postoperative day. Following this, the ureters were dilated with French no. 10 ureteral catheters every two weeks for a total of six dilatations on each side. On the ninety-fourth postoperative day bilateral retrograde pyelograms were normal (fig. 3 right). Renal function, as determined by the appearance time of indigo-carmine solution, was normal. The patient was doing her own housework and was free of symptoms.

Comment.—Bilateral ureteral ligation, with an incision into the left ureter, was probably caused by the difficulty encountered by the surgeon in controlling the hemorrhage. This case demonstrated the value of indwelling ureteral catheters in providing drainage from the upper urinary tract and avoidance of the more serious procedure of bilateral nephrostomy.

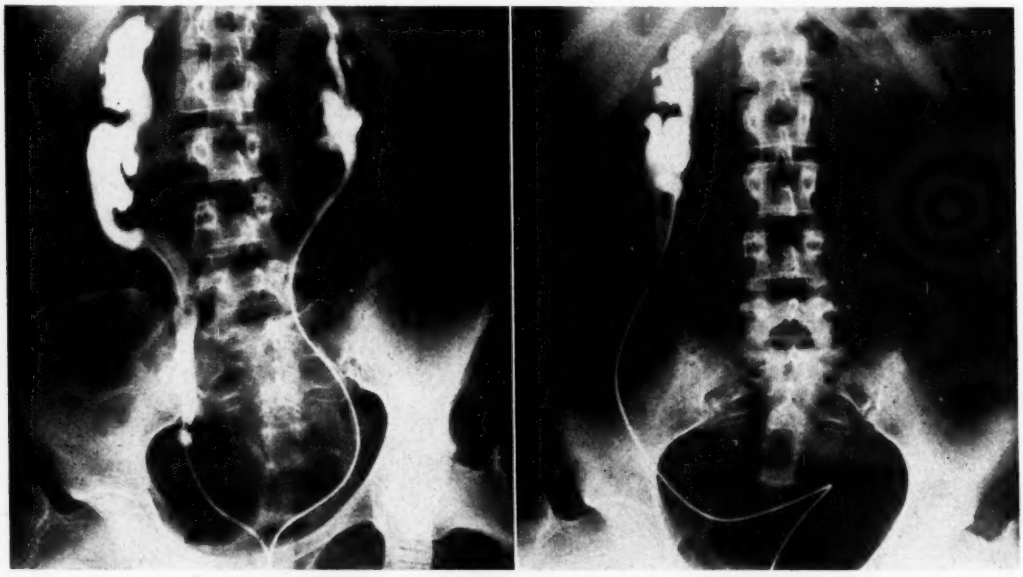

FIG. 4. Left. Preoperative pyelograms showing a horse-shoe kidney and point of injury in the lower right ureter in case 4. Right. Right retrograde pyelogram made on the eighty-fourth postoperative day following reimplantation of the right ureter into the bladder in case 4.

CASE 4.—Mrs. L. C., a 26 year old white woman, was first seen by two of us (M. K. O'H. and A. W. M.) on October 18, 1947, because of pain in the right kidney region, chills, and fever. Seven months previous a laparotomy was performed in a nearby city and an intraligamentous cyst was removed from the right side of the pelvis. A few hours after the operation the patient developed a hemorrhage and was returned to the operating room. The wound was reopened and the hemorrhage successfully controlled. Following this, she developed pain in the right kidney area and started having frequent chills and fever. A few weeks after the operation she developed what was thought to be ascites and over 3 gallons of fluid was removed by paracentesis. Her condition slowly grew worse and after seven months she came to us.

An examination revealed a markedly emaciated and extremely ill woman. Every day her temperature rose to from 103 to 104 F. Many of these elevations were preceded by

chills. She had a marked anemia, and the urine was loaded with pus. The blood nonprotein nitrogen was normal. An excretory urogram revealed a horseshoe kidney with poor function and inadequate filling on the right side. Cystoscopy was performed and after some difficulty a French no. 5 ureteral catheter was passed up the right ureter. An obstruction was encountered and passed at about 7 cm. (fig. 4 left). The patient was prepared for surgery and on October 23, 1947, the right ureter was reimplanted into the bladder. A large rubber tube was left indwelling in the ureter to serve both as a splint and ureterostomy tube.

The postoperative course was uneventful. The temperature dropped to normal. The patient gained weight and began to feel good. The ureteral catheter was removed in seven weeks and she was permitted to go home. She returned for a follow-up examination on the eighty-fourth postoperative day. At that time she stated she was feeling good, and had regained all of her weight. The urine still contained some pus. An excretory urogram revealed what appeared to be a hydronephrotic right kidney, but a retrograde pyelogram (fig. 4 right) revealed a kidney that might be regarded as within normal limits when considered as the right half of a horseshoe kidney. Ten months later the patient was in good health, and a right retrograde pyelogram was within normal limits.

Comment.—The right ureter was probably ligated or ligated and cut at the time the patient was returned to the operating room for the control of the postoperative hemorrhage. Following this, she probably developed a ureteroperitoneal fistula, and the ascitic fluid removed was probably urine. In the meantime the ureter recanalized, but obstruction was still present, necessitating a reimplantation of the ureter into the bladder.

CASE 5.—O. L., a 41 year old white woman, was seen by one of us (J. R. P.) on November 11, 1946, because she was passing urine through her vagina. She stated that forty-nine days prior to this visit she had undergone a laparotomy for endometriosis. Following this, she had severe pain in the left kidney area and after about two weeks began to leak urine through her vagina. She was weak, had lost considerable weight, and felt that something was wrong with her left kidney and bladder. Examination revealed a vesico-vaginal fistula about 1 inch in diameter. Excretory urograms revealed a large left hydronephrosis and hydroureter. On November 13, surgery was performed by one of us (J. R. P.). The vesico-vaginal fistula was repaired and a left nephro-ureterectomy was performed. The postoperative course was uneventful, and when seen last, fourteen months later, the patient was feeling good and was free of symptoms.

CASE 6.—Mrs. A. H., a 20 year old white woman, was operated upon on February 6, 1948. A large intraligamentous cyst was removed from the right side of the pelvis, and during the procedure the right ureter was accidentally cut about 6 cm. above the bladder. The surgeon recognized the mistake at once, and one of us (M. K. O'H.) was called in consultation. Following the completion of the gynecologic procedure, cystoscopy was performed and the right ureter was catheterized with a French no. 8 ureteral catheter. This was passed through the distal segment of the ureter and coiled up in the peritoneal cavity. The distal end of the ureteral catheter was then placed inside a French no. 26 Foley catheter left indwelling in the bladder. The proximal end of the ureteral catheter was then passed up the proximal segment of the ureter into the renal pelvis. Both ends of the severed ureter were then dissected free for a distance of about 2 cm. from the cut, and an end-to-end anastomosis was performed over the ureteral catheter with 5-0 chromic gut sutures. The ureteral bed was drained with a Penrose drain and the abdomen was closed. The patient is now well and symptom free. Retrograde pyelograms made on the forty-ninth operative day were normal.

Comment.—This alert surgeon recognized and admitted his mistake as soon as it was made, thereby permitting an end-to-end anastomosis of the cut ureter over a ureteral catheter.

CASE 7.—C. T., a 60 year old man, was seen by us on January 30, 1948, because of severe pain in the left groin and the left side of the perineum and scrotum for the past fifteen months. Fifteen months previous he had a radical abdomino-perineal resection of the bowel for carcinoma of the rectosigmoid. The pain in the left groin became so bad that about seven months later he was reoperated on because a recurrence of the carcinoma was suspected. No evidence of carcinoma was found.

Examination revealed a poorly nourished man, with a transverse colostomy in the left upper quadrant of the abdomen. There was a moderate anemia present. The urine was essentially normal. Cystoscopy was performed under spinal anesthesia. The bladder was normal. The right ureter and kidney were normal. On the left side an impassable obstruction was encountered at 6 cm. An excretory urogram was normal on the right, but there was no function apparent on the left. Urethroscopy revealed a normal bladder neck and urethra. Bilateral seminal vesiculograms were made and were normal.

On February 9, 1948, a transperitoneal left nephrectomy was performed. A biopsy specimen taken from the indurated area at the point of obstruction of the ureter showed a highly malignant adenocarcinoma. The findings in the upper urinary tract were a large hydro-ureter and hydronephrosis above the point of obstruction in the left side of the pelvis. Convalescence has been uneventful.

Comment.—The left ureterogram gave the impression of a suture about the ureter with attempted recanalization. It may be that the ureter was not injured and the obstruction was caused by the recurrent carcinoma.

CONCLUSIONS

Ureteral injuries are rarely incurred during the performance of pelvic surgery. The incidence is probably less than 3 per cent.

The ureter is most likely to be injured during the performance of those procedures requiring dissection deep in the pelvis. Controlling hemorrhage in the pelvis by clamping the uterine and inferior vesical arteries is a hazardous procedure and should be done with great caution.

The best prophylaxis is preliminary information concerning the pelvic ureters and visualization of the ureters at all times throughout the operation. The use of indwelling ureteral catheters is to be condemned as a routine practice because it gives the surgeon a false sense of security and invites additional complications.

In all cases of ureteral injury some provision must be made for establishing urinary drainage as early as possible, preferably at the time surgery is performed.

This may be done by nephrostomy, end-to-end anastomosis, or reimplantation of the ureter into the bladder.

We have not found it necessary to perform nephrostomy drainage and have successfully handled our cases by deligation and indwelling ureteral catheters, end-to-end anastomosis, and reimplantation of the ureter into the bladder.

We recommend conservative surgery and the preservation of the maximum amount of renal tissue, but we realize that in many cases the degree of hydronephrosis and infection is such that only nephrectomy can cure the patient.

REFERENCES

1. Barrett, C. W.: Ureters in Gynecological Surgery, Urol. & Cutan. Rev. *47*:589-591 (Oct.) 1943.

2. Brown, P. T.: Injury of Ureter in Pelvic Surgery, Am. J. Obst. & Gynec. *28*:879-887 (Dec.) 1934.

3. Caulk, J. R., and Fischer, R. F.: Experimental Study of Effect of Ureteral Ligation with Particular Reference to Its Occlusion During Pelvic Operation; Preliminary Report, Tr. Am. A. Genito-Urin. Surgeons *10*:72-81, 1915.

4. Caulk, J. R., and Fischer, R. F.: Experimental Study of Ureteral Ligation; Demonstration of Late Results to Ureter and Kidney, Surg., Gynec. & Obst. *30*:343-349 (April) 1920.

5. Drexler, L. S.: Injuries to Ureter Occurring During Course of Gynecological Operations, Urol. & Cutan. Rev. *43*:371-377 (June) 1939.

6. Ewell, G. H.: Accidental Injuries to Both Ureters During Pelvic Operations with Report of Case, Urol. & Cutan. Rev. *48*:364-369 (Aug.) 1944.

7. Feiner, D.: Operative Injuries of Ureter, Surg., Gynec. & Obst. *66*:790-796 (April) 1938.

8. Herman, L.; Green, L. B.; and Hayllar, B. L.: Ureteral Injuries, J. Urol. *56*:688-696 (Dec.) 1946.

9. Jenkins, J. A.: Ureteric Injury, Brit. J. Urol. *10*:252-259 (Sept.) 1938.

10. Leventhal, M. L.; Shapiro, I. J.; and Platt, A. J.: Ureteral Injuries in Gynecologic Surgery, Am. J. Obst. & Gynec. *37*:797-810 (May) 1939.

11. McIver, R. B.: Injuries of Ureter and Their Management, J.A.M.A. *124*:1116-1120 (April 15) 1944.

12. Newell, Q. U.: Injury to Ureters During Pelvic Operations, Ann. Surg. *109*:981-986 (June) 1939.

13. Novak, J.: Danger Zones for Ureters in Gynecological Operations and How To Avoid Injuries There, Urol. & Cutan. Rev. *48*: 321-325 (July) 1944.

14. Ockerblad, N. F.: Reimplantation of Ureter into Bladder by Flap Method, J. Urol. *57*:845-847 (May) 1947.

15. O'Heeron, M. K.: Periureteral Abscess, Texas State J. Med. *38*:27-32 (May) 1942.

16. Stevens, W. E.: Accidental Operative Injuries of Female Ureter, J. Urol. *31*:741-754 (May) 1934.

17. Thorek, M.: Surgical Errors and Safeguards, ed. 4, Philadelphia, J. B. Lippincott Company, 1943, p. 727.

18. VanHoosen, B.: Ureteral-Injury Prevention, Urol. & Cutan. Rev. *50*:138-139 (March) 1946.

ABSTRACT OF DISCUSSION

DR. REX R. ROSS, San Antonio: Ureteral injuries are among the most frequent and serious of surgical accidents, being reported as occurring in from 1 to 5 per cent of pelvic operations and having a high mortality and morbidity rate. The majority occur during female pelvic surgery. Persistent urinary fistulas, hydronephrosis, hydro-ureter, sepsis, peritonitis, anuria and uremia, atrophic and dead kidneys are the result in a great many cases. In a series of 97 cases reported by 15 urologists and gynecologists and reviewed by me there were 24 deaths, 30 nephrectomies, 8 dead kidneys, and 9 persistent urinary fistulas.

Some injuries are unavoidable but many can be prevented. A preoperative urologic work-up is essential and likewise the preoperative use of ureteral catheters or exposure of ureters and careful dissection will reduce hazard to a minimum. Criticism by the essayists and Leventhal of preoperative catheterization of ureters on account of infection and creation of a false sense of security is not justified in my opinion.

Unilateral injury fortunately is the most frequent but bilateral cases are not uncommon.

The early recognition of injury is most important in the successful outcome. If the injury is recognized at the time it occurs and if feasible, an end-to-end anastomosis over a ureteral catheter used as a splint and for prolonged drainage probably gives the best results. When the injury is low, implantation into the bladder is indicated using the catheter as above. If there is pronounced hydro-ureter and hydronephrosis or severe kidney infection, and also in cases where implantation into the bladder has been unsuccessful, nephrectomy is to be preferred.

In bilateral injury, immediate nephrostomy, pyelostomy, or high ureterostomy ranks over deligation. In my opinion these procedures are less shocking than reentering the abdomen, and in some instances they allow recanalization of the ureter. Ligation of the ureter to create a dead kidney is bad as it is too unreliable and not without risk.

In case 3, I would have handled the injury by preliminary nephrostomy; in case 4 by ureteral dilatation and indwelling catheter. However, the results speak for themselves and the essayists are to be commended for their splendid results.

DR. JOHN ROBERTS PHILLIPS, closing: Most of the injuries to the lower ureters can be avoided if proper prevention is undertaken and carried out. The most important thing is to have adequate incision, good anesthesia (I prefer a spinal anesthetic because of the relaxation afforded), good lights, and careful anatomic dissection. The injuries, of course, are most likely to occur in the difficult cases of tubo-ovarian diseases, endometriosis, and interligamentous tumors, either cystic or fibroid. If the ovarian vessels are ligated high and dissection is carried downward over the ureter with the ureter under vision, there will be a minimum of chance of injuring it. If injury should occur, it can be taken care of at the time. In cases of malignancy where the ureter is caught into the process, it is possible that the mid portion might be resected and the ureter either reimplanted into the bladder or planted into the sigmoid. In these days when so many total hysterectomies are being done (in my opinion it is the operation of choice in every case where a hysterectomy is carried out, because of the incidence of cervical disease and of carcinoma arising in the cervical stump) urologists are bound to see more cases of ureteral injuries.

TOWN MEETING OF AIR ON HEALTH INSURANCE

The February 22 broadcast of "America's Town Meeting of the Air," carried by the American Broadcasting Company network at 7:30 p. m., will feature a discussion of a national compulsory sickness insurance program. Dr. Morris Fishbein, Chicago, editor of *The Journal of the American Medical Association*, and Senator H. Alexander Smith, Princeton, N. J., will speak against such a program; Oscar Ewing, federal security administrator, and Walter Reuther, Detroit, president of the United Automobile Workers, C.I.O., will speak for it.

News

COMING MEETINGS AND CLINICS

State Medical Association of Texas, San Antonio, May 2-5, 1949. Dr. Tate Miller, Dallas, Pres.; Dr. Harold M. Williams, 700 Guadalupe St., Austin, Secy.

American Medical Association, Atlantic City, June 6-10, 1949. Dr. R. L. Sensenich, South Bend, Ind., Pres.; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy. Dr. Will C. Sprain, New York, Pres.; Dr. Theodore L. Squier, 424 E. Wisconsin Ave., Milwaukee, Secy.

American Academy of Dermatology and Syphilology. Dr. Francis E. Senear, Chicago, Pres.; Dr. Louis A. Brunsting, 102 2nd Ave., S. W., Rochester, Minn., Secy.

American Academy of General Practice, Cincinnati, March 7-9, 1949. Dr. Paul A. Davis, Akron, Ohio, Pres.; Dr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secy.

American Academy of Neurological Surgery. Dr. William S. Keith, Toronto, Canada, Pres.; Dr. T. C. Erickson, 1300 University Ave., Madison 5, Wis., Secy.

American Academy of Ophthalmology and Otolaryngology. Dr. Conrad Berens, New York, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn., Secy.

American Academy of Pediatrics. Dr. Warren R. Sission, Boston, Pres.; Dr. C. G. Grulee, 636 Church St., Evanston, Ill., Secy.

American Association for Thoracic Surgery, New Orleans, March 29-31, 1949. Dr. E. D. Churchill, Boston, Pres.; Dr. Brian Blades, 1335 H St. N. W., Washington, D. C., Secy.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, May 9-11, 1949. Dr. Clyde L. Deming, New Haven, Pres.; Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secy.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons. Dr. Robert D. Mussey, Rochester, Minn., Pres.; Dr. L. A. Calkins, University of Kansas Medical Center, Kansas City 3, Secy.

American Cancer Society. Dr. Clifford C. Nesselrode, Kansas City, Kan., Pres.; Mr. Charles D. Hilles, 47 Beaver St., New York, Secy.

American College of Physicians, New York, March 28-April 1, 1949. Dr. Walter W. Palmer, New York, Pres.; Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secy.

American College of Radiology, Atlantic City, June 5, 1949. Dr. E. P. Pendergrass, Philadelphia, Pres.; Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Secy.

American College of Surgeons. Dr. Arthur W. Allen, Boston, Pres.; Dr. Paul B. Magnuson, 40 E. Erie St., Chicago 11, Secy.

American Congress of Physical Medicine. Dr. H. Worley Kendell, Chicago, Pres.; Dr. Richard Kovacs, 2 E. 88th St., New York 28, Secy.

American Dermatological Association. Dr. Harry R. Foerster, Milwaukee, Pres.; Dr. L. A. Brunsting, 102 2nd. Ave., S. W., Rochester, Minn., Secy.

American Gastro-Enterological Association, Atlantic City, June 3-4, 1949. Dr. A. F. R. Andresen, Brooklyn, Pres.; Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secy.

American Gynecological Society. Dr. Edward A. Schumann, Philadelphia, Pres.; Dr. Howard Taylor, Jr., 842 Park Ave., New York 21, Secy.

American Hospital Association. Mr. Joseph G. Norby, Milwaukee, Pres.; Mr. George P. Bugbee, 18 E. Division St., Chicago, Executive Secy.

American Laryngological, Rhinological, and Otological Society, Chicago, April, 1949. Dr. John J. Shea, Memphis, Tenn., Pres.; Dr. C. S. Nash, 277 Alexander St., Rochester 7, N. Y., Secy.

American Neurological Association. Dr. Stanley Cobb, Boston, Pres.; Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secy.

American Ophthalmological Society, Hot Springs, Va., June 2-4, 1949. Dr. Bernard Samuels, New York, Pres.; Dr. M. C. Wheeler, 30 W. 59th St., New York, Secy.

American Orthopedic Association, Colorado Springs, May 18-21, 1949. Dr. R. K. Ghormley, Rochester, Minn., Pres.; Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secy.

American Pediatric Society, Atlantic City, May 5-6, 1949. Dr. Jean V. Cooke, St. Louis, Pres.; Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secy.

American Proctologic Society. Dr. Harry E. Bacon, Philadelphia, Pres.; Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Secy.

American Psychiatric Association, Montreal, Canada, May 23-27, 1949. Dr. W. C. Menninger, Topeka, Kan., Pres.; Dr. Leo H. Bartemeier, General Motors Bldg., Detroit, Secy.

American Public Health Association, New York, Oct. 24-28, 1949. Dr. Charles F. Wilinsky, Boston, Pres.; Dr. R. M. Atwater, 1790 Broadway, New York 19, Secy.

American Society of Anesthesiologists. Dr. H. Boyd Stewart, Tulsa, Okla., Pres.; Dr. Curtis B. Hickcox, 188 W. Randolph St., Chicago, Secy.

American Society of Clinical Pathologists. Dr. Osborne A. Brines, Detroit, Pres.; Dr. Clyde G. Culbertson, Indiana University School of Medicine, Indianapolis, Secy.

American Surgical Association, St. Louis, April 20-22, 1949. Dr. Fred W. Rankin, Lexington, Ky., Pres.; Dr. Nathan Womack, University of Iowa, Iowa City, Secy.

American Urological Association, Los Angeles, May 16-19, 1949. Dr. Charles C. Higgins, Cleveland, Pres.; Dr. T. D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secy.

International College of Surgeons, U. S. Chapter, Atlantic City, Nov. 8-11, 1949. Dr. Curtis L. Hall, Washington, D. C., Pres.; Dr. Arnold S. Jackson, 16 S. Henry St., Madison, Wis., Secy.

National Tuberculosis Association, Detroit, May 2-6, 1949. Dr. Herbert L. Manz, Kansas City, Mo., Pres.; Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secy.

Radiological Society of North America. Dr. L. Henry Garland, San Francisco, Pres.; Dr. D. S. Childs, Medical Arts Bldg., Syracuse 2, N. Y., Secy.

Southern Medical Association, Cincinnati, Nov. 14-19, 1949. Dr. Oscar B. Hunter, Washington, D. C., Pres.; Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham, Ala., Secy.

Southern Psychiatric Association. Dr. Guy F. Witt, Dallas, Pres.; Dr. Newdigate M. Owensby, 384 Peachtree St. N. E., Atlanta, Ga., Secy.

Southern Surgical Association. Dr. Alfred Blalock, Baltimore, Pres.; Dr. John C. Burch, 2112 West End Ave., Nashville, Tenn., Secy.

Southwest Allergy Forum, El Paso, April 4-5, 1949. Dr. Sim Hulsey, Fort Worth, Pres.; Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secy.

Southwestern Medical Association. Dr. Joseph M. Greer, Phoenix, Ariz., Pres.; Dr. Wickliffe R. Curtis, First National Bank Bldg., El Paso, Secy.

Southwest Regional Cancer Conference, Fort Worth, Nov. 9, 1949. Secy., 209 Medical Arts Bldg., Fort Worth.

United States-Mexico Border Public Health Association, Nogales, Ariz., and Nogales, Mexico, 1949. Dr. Victor Ocampo Alonzo, Hermosillo, Mexico, Pres.; Dr. M. F. Haralson, 314 U. S. Court House, El Paso, Secy.

STATE

Texas Air-Medics Association, San Antonio, May 2, 1949. Dr. Thomas J. Cross, Fort Worth, Pres.; Dr. C. F. Miller, 906 Medical Arts Bldg., Waco, Secy.

Texas Asosciation of Obstetricians and Gynecologists, Dallas, 1949. Dr. Julius McIver, Dallas, Pres.; Dr. George F. Adam, 4115 Fannin, Houston, Secy.

Texas Chapter, American Academy of General Practice, San Antonio, May 2, 1949. Dr. J. B. Copeland, San Antonio, Pres.; Dr. W. P. Higgins, Jr., Medical Arts Bldg., Fort Worth, Secy.

Texas Chapter, American College of Chest Physicians, San Antonio, May 2, 1949. Dr. Elliott Mendenhall, Dallas, Pres.; Dr. Charles J. Koerth, Kerrville, Secy.

Texas Club of Internists. Dr. Julian C. Barton, San Antonio, Pres.; Dr. Victor E. Schulze, 219 S. Magdalen St., San Angelo, Secy.

Texas Dermatological Society, San Antonio, May, 1949. Dr. D. T. Gandy, Houston, Pres.; Dr. W. Harris Connor, 601 Medical Arts Bldg., Houston, Secy.

Texas Diabetes Association, San Antonio, May 1-2, 1949. Dr. J. Shirley Sweeney, Gainesville, Pres.; Dr. W. N. Powell, W. Ave. F, Temple, Secy.

Texas Division, American Cancer Society, Fort Worth, Nov., 1949. Mr. Frank C. Smith, Houston, Pres.; Mrs. Jack Hutchins, El Campo, Secy.

Texas Heart Association, San Antonio, May 2, 1949. Dr. Walter B. Whiting, Wichita Falls, Pres.; Dr. Merritt B. Whitten, 1421 Medical Arts Bldg., Dallas, Secy.

Texas Hospital Association, Galveston, April 19-21, 1949. Mr. C. J. Hollingsworth, Lubbock, Pres.; Mrs. Ruth Barnhart, 2210 Main St., Dallas, Secy.

Texas Neuropsychiatric Association, San Antonio, May 2, 1949. Dr. M. J. Cooper, San Antonio, Pres.; Dr. David Wade, 510 Capital National Bank Bldg., Austin, Secy.

Texas Orthopedic Association, San Antonio, May 2, 1949. Dr. Ruth Jackson, Dallas, Pres.; Dr. Margaret Watkins, 3629 Fairmount St., Dallas, Secy.

Texas Pediatric Society, San Antonio, October, 1949. Dr. John Glen, Houston, Pres.; Dr. James Walker, 3616 Tulsa Way, Fort Worth, Secy.

Texas Public Health Association, San Antonio, Feb. 20-23, 1949. Dr. Austin E. Hill, San Antonio, Pres.; Mr. Earle W. Sudderth, Dallas County Health Department, Court House, Dallas, Executive Secy.

Texas Radiological Society, Dallas, Jan., 1950. Dr. J. J. Faust, Tyler, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, San Antonio, May 2, 1949. Dr. Denman C. Hucherson, Houston, Pres.; Dr. W. F. Parsons, First National Bank Bldg., Fort Worth, Secy.

Texas Rheumatism Association, San Antonio, May 2, 1949. Dr. Howard C. Coggeshall, Dallas, Pres.; Dr. J. Paul Thomas, Medical Arts Bldg., Dallas, Secy.

Texas Society for Mental Hygiene, Dallas, March 3-5, 1949. Dr. Ozro T. Woods, Dallas, Pres.; Mrs. Elizabeth F. Gardner, 1617 Watchhill Road, Austin 21, Executive Secy.

Texas Society of Anesthesiologists, San Antonio, May 2, 1949. Dr. J. C. Youngblood, Houston, Pres.; Dr. H. C. Slocum, 928 Strand, Galveston, Secy.

Texas Society of Gastroenterologists and Proctologists, San Antonio, May 2, 1949. Dr. Alvin Baldwin, Dallas, Pres.; Dr. Carl Giesecke, 1602 Nix Professional Bldg., San Antonio, Secy.

Texas Society of Ophthalmology and Otolaryngology, San Antonio, December, 1949. Dr. August J. Streit, Amarillo, Pres.; Dr. John L. Matthews, 929 Nix Professional Bldg., San Antonio, Secy.

Texas Society of Pathologists. Dr. W. W. Coulter, Sr., Houston, Pres.; Dr. C. T. Ashworth, 604 Medical Arts Bldg., Fort Worth, Secy.

Texas State Urological Society, Temple, Feb. 7, 1949. Dr. Michael K. O'Heeron, Houston, Pres.; Dr. E. O. Bradfield, Scott and White Clinic, Temple, Secy.

Texas Surgical Society, Houston, April 5-6, 1949. Dr. E. P. Bunkley, Stamford, Pres.; Dr. Truman G. Blocker, 927 Strand, Galveston, Secy.

Texas Tuberculosis Association, Tyler, April 8-9, 1949. Dr. Elliott Mendenhall, Dallas, Pres.; Miss Pansy Nichols, 208 E. Ninth, Austin, Executive Secy.

DISTRICT

Second District Society. Dr. R. B. G. Cowper, Big Spring, Pres.; Dr. Carl Uthoff, Big Spring, Secy.

Third District Society, Amarillo, April 12-13, 1949. Dr. C. E. High, Pampa, Pres.; Dr. Kenneth Flamm, Amarillo, Secy.

Fourth District Society, San Angelo, October, 1949. Dr. J. C. Young, Coleman, Pres.; Dr. Charles F. Bailey, Ballinger, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July, 1949. Dr. D. R. Knapp, Kerrville, Pres.; Dr. Charles Tennison, Nix Professional Bldg., San Antonio, Secy.

Seventh District Society, Taylor, Feb. 15, 1949. Dr. David Wade, Austin, Pres.; Dr. Joe W. Bailey, 1411 San Antonio St., Austin, Secy.

Eighth, Ninth and Tenth Districts Society. Dr. T. O. Woolley, Orange, Pres.; Dr. James Greenwood, Jr., 518 Medical Arts Bldg., Houston 2, Secy.

Eleventh District Society, Henderson, April 14, 1949. Dr. Lynn Hilbun, Henderson, Pres.; Dr. C. B. Young, 929 S. Confederate, Tyler, Secy.

Twelfth District Society. Dr. R. R. White, Temple, Pres.; Dr. H. F. Connally, Jr., Amicable Bldg., Waco, Secy.

Thirteenth District Society, Dr. Fred Harrell, Olney, Pres.; Dr. Porter Brown, Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society. Dr. W. I. Southerland, Sherman, Pres.; Dr. John Bagwell, Medical Arts Bldg., Dallas, Secy.

Fifteenth District Society, Longview, October, 1949. Dr. P. A. Reitz, Pittsburg, Pres.; Dr. James E. Ball, Mount Pleasant, Secy.

CLINICS

Dallas Southern Clinical Society, Dallas, March 14-17, 1949. Miss Betty Elmer, Medical Arts Bldg., Dallas 1, Executive Secy.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, 1950. Dr. John J. Hinchey, 643 Moore Bldg., San Antonio 5, Secy.

New Orleans Graduate Medical Assembly, New Orleans, March 7-10, 1949. Dr. Woodard D. Beacham, Room 105, 1430 Tulane Ave., New Orleans 12, Secy.

DALLAS SOUTHERN CLINICAL SOCIETY CONFERENCE

The eighteenth annual spring clinical conference of the Dallas Southern Clinical Society will be held March 14-17 with the Hotel Adolphus, Dallas, as headquarters. Twelve outstanding speakers will address general assemblies, answer questions at luncheon conferences, and hold clinics. Local members of the society will participate in special clinics on medicine, surgery, and eye, ear, nose, and throat. Motion pictures, commercial exhibits, a clinical-pathological conference, and the annual clinic dinner will round out the program, registration fee for which is $20.

The general fields which will be considered and the representative speakers who will participate are as follows: dermatology, Dr. A. Benson Cannon, New York; medicine, Drs. A. McGehee Harvey, Baltimore, and Julian M. Ruffin, Durham, N. C.; obstetrics and gynecology, Dr. Herbert A. Schmitz, Chicago; ophthalmology, Dr. Kenneth C. Swan, Portland, Ore.; otolaryngology, Dr. Francis L. Lederer, Chicago; pathology, Dr. E. T. Bell, Minneapolis; pediatrics, Dr. T. Campbell Goodwin, Cooperstown, N. Y.; radiology, Dr. Lowell S. Goin, Los Angeles; surgery, Drs. Richard B. Cattell, Boston, and Nathan A. Womack, Iowa City; and urology, Dr. Robert B. McIver, Jacksonville, Fla.

Physicians who expect to attend the conference in Dallas have been requested to register in advance if possible, sending their applications to the Dallas Southern Clinical Society, 433 Medical Arts Building, Dallas 1, and to make their own room reservations directly with the hotels.

NEW ORLEANS MEDICAL ASSEMBLY

The New Orleans Graduate Medical Assembly will hold its twelfth annual meeting March 7-10 in the Municipal Auditorium, New Orleans.

Speakers and their subjects include Drs. C. Guy Lane, Boston, dermatology; Albert F. R. Andresen, Brooklyn, gastro-enterology; George H. Gardner, Chicago, gynecology; Russell L. Cecil, New York, Charles A. Poindexter, New York, and Edward H. Rynearson, Rochester, Minn., medicine; O. Spurgeon English, Philadelphia, neuropsychiatry; Francis B. Carter, Durham, N. C., obstetrics; Everett L. Goar, Houston, ophthalmology; James S. Speed, Memphis, orthopedic surgery; C. Stewart Nash, Rochester, Minn., otolaryngology; A. Ashley Weech, Cincinnati, pediatrics; Frederic E. Templeton, Seattle, radiology; Frank H. Lahey, Boston, John de J. Pemberton, Rochester, Minn., and Reginald H. Smithwick, Boston, surgery; J. A. Campbell Colston, Baltimore, urology; and Col. J. E. Ash, U. S. Army, Washington D. C., pathology.

Registration fee for the conference is $15.

A tour to Mexico will follow the assembly meeting. Doctors and their wives taking the tour will leave March 12 by air for Mexico City, where a medical program has been arranged, and will return March 27 after visiting other points of interest in Mexico.

Further information about the assembly meeting and the tour may be obtained from the secretary, Room 105, 1430 Tulane Avenue, New Orleans 12.

Psychotherapy Meeting

A three-state meeting, devoted in general to psychodiagnosis and psychotherapy, was conducted at the Veterans Administration Hospital, Temple, in December. Attending were psychiatrists, psychologists, and others from veterans hospitals and offices in Louisiana, Mississippi, and Texas, according to the Waco *Times Herald*.

MEMBERS OF THE FIFTY-FIRST TEXAS LEGISLATURE

Names of Senators and Representatives in the Fifty-First Legislature of Texas are listed below by districts for the convenience of those who wish to contact them in connection with the current legislative program of the State Medical Association and of other groups interested in improving health conditions in the state.

SENATORS BY DISTRICTS

1.	Howard A. Carney	Atlanta
2.	Wardlow W. Lane	Center
3.	Ottis E. Lock	Zavalla
4.	W. R. Cousins, Jr.	Beaumont
5.	Mrs. Neveille H. Colson	Navasota
6.	James E. Taylor	Kerens
7.	Warren McDonald	Tyler
8.	A. M. Aikin, Jr.	Paris
9.	Charles R. Jones	Bonham
10.	G. C. Morris	Greenville
11.	Fred Red Harris	Dallas
12.	Crawford C. Martin	Hillsboro
13.	Kyle Vick	Waco
14.	William T. (Bill) Moore	Bryan
15.	Gus J. Strauss	Hallettsville
16.	Searcy Bracewell	Houston
17.	Jimmy Phillips	Angleton
18.	John J. Bell	Cuero
19.	R. A. Weinert	Seguin
20.	Carlos Ashley	Llano
21.	W. A. (Son) Shofner	Temple
22.	R. L. Proffer	Justin
23.	George Moffett	Chillicothe
24.	Pat Bullock	Colorado City
25.	Dorsey B. Hardeman	San Angelo
26.	Walter Tynan	San Antonio
27.	Rogers Kelley	Edinburg
28.	Keith F. Kelly	Fort Worth
29.	Hill D. Hudson	Pecos
30.	Kilmer B. Corbin	Lamesa
31.	Grady Hazlewood	Amarillo

REPRESENTATIVES BY DISTRICTS

1.	Jim T. Lindsey	Boston
2.	Cloyd D. Young	Linden
3f.	Newton W. McCann	Texarkana
4.	Surry Turner	Gilmer
5.	Walter Caven	Marshall
6f.	Cecil Storey	Longview
7.	O. A. Cassity, Jr.	Beckville
8.	Joe B. Fleming	Henderson
9.	James L. Norton, Jr.	Nacogdoches
10.	Milton Wilkinson	Patroon
11.	Paul S. Wilson	Geneva
12.	Raymond T. R. Tatum	Huntington
13.	Edward P. Hughes	Newton
14.	Bill Daniel	Liberty
15f.	Miller B. Walker	Beaumont
16.	Jack B. Brooks	Beaumont
	Otis Lee	Port Arthur
17f.	L. D. (Duke) Godard	Texas City
18.	Dudley W. Peterson	Galveston
19.	Bob Casey	Houston
	Jeff Woodruff	Pasadena
	Carleton Moore, Sr.	Houston
	J. M. Heflin	Houston
	William A. (Bill) Miller, Jr.	Houston
20.	James B. Pattison	Pattison
21.	Franklin Perry	Angleton
22.	Floyd G. Rust, Jr.	Wharton
23.	Fred Niemann	Yoakum
24.	Dr. J. A. Luedemann	Brenham
25.	C. S. McLellan	Eagle Lake
26.	James K. Presnal	College Station
27f.	G. P. Pearson, Jr.	Navasota
28.	James Marvin Windham	Livingston
29.	M. B. Etheredge, Jr.	Huntsville
30.	C. W. Woods	Crockett
31.	Jack K. Wisener	Wells
32.	Bill Wood	Tyler
33f.	Tom Whiteside	Tyler
34.	C. P. McKnight, Jr.	Quitman
35.	Alford H. Flanagan	Talco
36.	Phil Brooks	Bagwell
37.	George W. Watson	Paris
38f.	L. P. Caston	Leonard
39.	Claude H. McCorkle	Sulphur Springs
40.	Byron R. Tinsley	Greenville
41.	Ray Kirkpatrick	Trenton
42f.	William A. Swindell	Commerce
43.	Davis Clifton	Farmersville
44.	James T. Sparks	Sherman
	Joe D. Carter	Sherman
45f.	Captain J. A. Benton	Wylie
46.	C. C. Gardner	Gainesville
47.	Wayne W. Wagonseller	Fruitland
48.	L. C. Slimp, Jr.	Decatur
49.	Robert Hal Jackson	Denton
50.	John L. Crosthwait	Dallas
	W. O. Reed	Dallas
	Sam Hanna	Dallas
	George Parkhouse	Dallas
	Douglas E. Bergman	Dallas
51f.	Preston P. Mangum	Dallas
52.	Phillip L. Willis	Kaufman
53.	M. K. Thomas	Wills Point
54.	Jack Y. Hardee	Chandler
55.	John B. McDonald	Neches
56.	Jack C. Bryan	Buffalo
57.	Jerry A. Steward	Fairfield
58.	George O. Nokes, Jr.	Corsicana
59.	Andy M. James	Hillsboro
60f.	Jerry T. Stockard	Frost
61.	A. Robin Henderson	Groesbeck
62.	Frank C. Oltorf	Marlin
63.	Herman Yezak	Franklin
64.	H. F. Paschall	Milano
65f.	Henry G. Lehman	Giddings
66.	R. B. Spacek	Fayetteville
67.	Durwood Manford	Smiley
68.	Tom Cheatham	Cuero
69.	William S. Fly	Victoria
70.	Harvey Shell	Gregory
71.	O. E. Cannon	Corpus Christi
72.	Menton J. Murray	Harlingen
73.	Joe M. Kilgore	McAllen
74.	A. J. Vale	Rio Grande City
75.	Abraham Kazen, Jr.	Laredo
76.	J. F. Gray	Three Rivers
77.	Dolph Briscoe, Jr.	Uvalde
78.	W. A. Williamson	San Antonio
	Eugene C. Williams	San Antonio
	Jack F. Ridgeway	San Antonio
	Marshall O. Bell	San Antonio
	O. E. Latimer	San Antonio
79.	L. L. Holstein	Pandora
80.	H. A. Heideke	Seguin
81.	William George Richards	Lockhart
	Max C. Smith	San Marcos
82.	Pearce Johnson	Austin
	Johnnie B. Rogers	Austin
83.	Frank Svadlenak	Thrall
84f.	William R. Stump	Georgetown
85.	A. W. Moursund	Johnson City
86.	Callan Graham	Junction
87.	Tom H. Stovell	Alpine
88.	J. T. Rutherford	Odessa
89.	S. J. Isaacks	El Paso
	William S. Jameson	El Paso
90f.	Louis J. Ivey	El Paso
91.	R. E. (Peppy) Blount, Jr.	Big Spring
92.	W. H. Rampy	Winters
93.	Reuben Senterfitt	San Saba
94.	Sid Gregory	Gatesville
95.	Lamar Zivley	Temple
96f.	Frank B. McGregor	Waco
97.	Hiram Staton	Waco
	J. K. Aynesworth	Waco
98f.	Albert M. Jones	Valley Mills
99.	D. D. Gathings	Cleburne
100.	Mrs. Rae Files Still	Waxahachie
	Don A. Lewis	Midlothian
101.	Joe Pyle	Fort Worth
	W. H. (Bill) Abington	Fort Worth
	Doyle Willis	Fort Worth
	H. A. (Salty) Hull	Fort Worth
102f.	Joe Shannon	Fort Worth
103.	Floyd Bradshaw	Weatherford
104.	W. E. Heatly	DeLeon
105.	H. G. Perry	Stephenville
106.	T. M. Collie	Eastland
107f.	Billie M. Jobe	Putnam
108.	Jack Cox	Breckenridge
109.	J. W. (Bill) Loving	Graham
110.	Jimmy P. Horany	Archer City
111.	Deno A. Tufares	Wichita Falls
	Vernon McDaniel	Wichita Falls
112f.	Leslie King	Vernon
113.	Clyde Whiteside	Seymour
114.	John E. (Jack) Morrison	Chillicothe
115.	William B. Teague	Anson
116.	W. K. (Bill) Tippen	Abilene
117.	Hiram Childress	Sweetwater
118.	Sterling W. Williams	Snyder
119.	Preston E. Smith	Lubbock
120.	I. B. Holt	Olton
121.	A. J. Rogers	Childress
122.	Grainger W. McIlhany	Wheeler
123.	J. Blake Timmons	Amarillo
124.	William J. (Bill) Craig	Miami
125.	W. R. Chambers	May
126f.	Joe W. Gandy	Winnsboro
127.	Harry Whitworth	Smithville

MENTAL HYGIENE SOCIETY TO MEET

The sixteenth annual conference of the Texas Society for Mental Hygiene will be held in Dallas, March 3-4, with three featured speakers. Dr. William C. Menninger, director of the Menninger Foundation, Topeka, Kan., will discuss mental hygiene and psychiatry in everyday living, keynoting the theme of the conference. Dr. Frances Ilg, child expert and author and member of the staff of the Yale University Clinic for Child Development, and Col. William F. Bullis, creator of the "Delaware Plan" and leader in the U. S. Public Health Service, will also participate in the program.

Workshop sections sponsored and assisted by interested groups will be devoted to seven subjects: men at work, living with handicaps, school age problems, college program, alcoholism, religion, and care of the mentally ill.

Registration in advance is advocated by conference planners, who wish to know which workshop sections registrants plan to attend. Mrs. Oscar E. Hubbard, 4412 Coles Manor Place, Dallas 4, is chairman of the conference attendance registration committee.

UNIVERSITY OF TEXAS MEDICAL BRANCH

A gift of $4,500 from the wife and daughter of H. H. Weinert, Seguin, to support research on arteriosclerosis by Dr. George R. Herrmann, professor of medicine and director of the Cardiovascular Research Laboratory at the Medical Branch, has recently been received. Contributions to the H. H. Weinert Endowment Fund to date total more than $15,000, Chauncey D. Leake, Ph. D., vice-president of the Medical Branch, reports.

A grant of $1,500 to the Industrial Hygiene Laboratory of the Medical Branch to support studies directed by Dr. Carl A. Nau, professor of preventive medicine and public health, on the control of effects of possible toxic dusts has been made by the Cabot Carbon Company of Pampa.

A Shriner Crippled Children's Emergency Fund has been established by El Katif Shrine, Galveston, with a donation of $1,000. Established by a Negro organization, the fund is to be used for the benefit of crippled children without regard to race or religion. It will be administered by Dr. Arild E. Hansen, professor of pediatrics and director of the child health program at the Medical Branch.

Dr. Hansen and Dr. C. C. Grulee, Jr., director of the Stewart Convalescent Home for Children, Galveston, took part in a conference of the Mexican Pediatric Society held in Mexico City, in December, reports the Galveston *News.*

Dr. W. A. Selle, director of the medical physics laboratory at the Medical Branch, has been asked by the University of California at Los Angeles to serve as adviser in the development of biophysics laboratories, according to the Galveston *Tribune.*

PERSONALS

Dr. R. Lee Clark, Jr., director of the M. D. Anderson Hospital for Cancer Research, Houston, was recently reappointed to the Cancer Committee of the American College of Surgeons by the regents of the college.

Dr. Michael E. de Bakey, professor of surgery at Baylor University College of Medicine, Houston, has been named to the armed forces medical advisory committee which Secretary of Defense James Forrestal has set up to aid in formulating general medical policies for the armed forces, developing adequate medical coverage for the services, and eliminating duplication of medical facilities among the branches of service, reports the Houston *Chronicle.*

Dr. Felix P. Miller, El Paso, has recently returned from five weeks in Puerto Rico where he made a survey of the Municipal Hospital, San Juan, for the American College of Surgeons, and the U. S. Army Hospital-Rodriguez at Fort Brooke for the Surgeon General.

Dr. and Mrs. G. V. Morton, Fort Worth, were honored on their golden wedding anniversary December 15 with an open house given by their children, the Tarrant County Medical Society Bulletin informs.

Dr. Frank H. Lancaster, Houston, has been appointed to the committee for the improvement of child health of the American Academy of Pediatrics, the academy has announced. Dr. Lancaster and *Dr. Bruce A. Knickerbocker,* Dallas, are co-chairmen for the academy in Texas.

Library Section

PACKAGE SERVICE

The package library consists of collections of reprints and other periodical material on various subjects, prepared for lending to members of the Association. Requests for packages should be addressed "Library, State Medical Association of Texas, 700 Guadalupe Street, Austin, Texas." Twenty-five cents in stamps should be enclosed with the request to cover postage and part of the expense of collecting the material. Packages are allowed to remain in the hands of the borrower for 14 days.

ACCESSIONS

The following additions were made to the Library during January:

Reprints received, 1,139.

Journals received, 306.

Books received, 16.

Health Education, by Wilson (editor), from the National Educational Association of the United States, Washington, D. C.

Diseases of the Ear, Nose, and Throat, by Carruthers; *Elementary Anesthesia,* by Kemp, and *Muscles, Testing and Function,* by Kendall and Kendall, from Williams and Wilkins Company, Baltimore.

The Ciba Collection of Medical Illustrations, by Netter, and *Male Hormone Therapy,* by Ciba, from the Ciba Pharmaceutical Products, Inc., Summit, N. J.

The Business Side of Medical Practice, by Wiprud; *Blood Transfusion,* by DeGowin and others; *Obstetric Analgesia,* by Snyder; *Clinical Aspects and Surgical Treatment of Surgical Infections,* by Meleney, and *The Mayo Clinic Diet Manual,* by the Committee on Dietetics of the Mayo Clinic, from W. B. Saunders Company, Philadelphia and London.

Nursing for the Future, by Brown, from the Russell Sage Foundation, New York.

Manual of Clinical Laboratory Methods, by Hepler, from Charles C. Thomas Company, Springfield, Ill.

How Laymen Cut Medical Costs, by the Public Health Institute, from the Public Health Institute, Chicago.

Essentials of Gynecologic Endocrinology, by Riley, from the Caduceus Press, Ann Arbor, Mich.

The Hormones, Physiology, Chemistry, and Applications, by Pincus and Thimann (editors), from the Academic Press, Inc., New York.

SUMMARY OF SERVICE

Local users and visitors, 34.	Borrowers by mail, 71.
Items consulted, 510.	Packages mailed, 77.
Items borrowed, 118.	Items mailed, 727.

Total number of items consulted and loaned, 1,355.

EARLY MIDWIFERY BOOK IS GIFT

An unusual book on midwifery has been presented to the Library of the State Medical Association by Dr. William M. Gambrell, Austin. Written by W. Beach, M. D., in 1846, the book is entitled "An Improved System of Midwifery Adapted to the Reformed Practice of Medicine." It is illustrated by numerous plates, and in addition to the material on the subject proper, includes a history of midwifery and a compendium of the treatment of female and infantile diseases, with remarks on physiologic and moral elevation.

Dr. Gambrell's gift will be added to the Rare Book Collection of the Library.

MOTION PICTURE FILM LIBRARY

Motion picture films on medical subjects, 16 mm., both silent and sound, some in color, and suitable for either medical or lay audiences, are available for loan to county medical societies, hospital staffs, or individual physicians, on request. Borrowers will be required to pay only the cost of shipment of the films, by express, with insurance, and for any damage to films in the hands of the borrower.

Requests for films should be addressed to "Motion Picture Film Library, State Medical Associatibn of Texas, 700 Guadalupe Street, Austin, Texas." A list of available films, with descriptions, will be furnished on request.

The following motion picture films were loaned by the Film Library during January:

Analgesia, Continuous Caudal (Becton, Dickinson & Co.)—Medical and Surgical Clinic Staff and St. Vincent's Hospital Staff, Sherman.

Anemia, Erythroblastic (Mead Johnson)—Coleman County Medical Society, Coleman.

Anesthesia, Novocain, in Obstetrics (Winthrop Chemical Co.)—Medical Arts Hospital Staff, Brownwood.

Anesthesia, Regional (Winthrop Chemical Co.)—Edgar-Renegar Clinic, Levelland.

Antitoxin, Globulin Modified (Lederle Laboratories)—Hermann Hospital School of Nursing, Houston.

Appendicitis in Childhood (Mead Johnson)—Medical and Surgical Clinic Staff and St. Vincent's Hospital Staff, Sherman.

Appraisal of the Newborn (Mead Johnson)—St. Mary's Infirmary, Galveston.

As Others See Us (American Hospital Association)—Kenedy Clinic and Hospital Staff, Kenedy, and District 15 Graduate Nurses Association, Abilene.

Breech Extraction with Forceps (Mead Johnson)—Methodist Hospital School of Nursing, Houston.

Cervical Smear (Dr. Karl John Karnaky)—Karnes-Wilson Counties Medical Society, Kenedy.

Cesarean Section (Mead Johnson)—Medical Arts Hospital, Brownwood.

Chest Disease, Surgery in (British Information Services)—Pre-Medical Club, Baylor University, Waco, and Dr. A. W. Brazda, Ranger.

Choose to Live (U. S. Public Health Service)—University of Houston School of Nursing, Houston.

Control of Louse-Borne Disease (War Department)—Hermann Hospital School of Nursing, Houston.

In Daily Battle (National Foundation for Infantile Paralysis)—University of Houston School of Nursing, Houston.

D.D.T., Weapon against Diseases (War Department)—Hermann Hospital School of Nursing, Houston.

Dental Health (War Department)—Hermann Hospital School of Nursing, Houston.

Diphtheria and Croup (Lederle Laboratories)—Brackenridge Hospital School of Nursing, Austin; Coffey Clinic, Fort Worth; and St. Joseph's Hospital School of Nursing, Fort Worth.

Dysmenorrhea, Primary (Searle Laboratories)—Henderson County Medical Society, Athens.

Eyes for Tomorrow (Dr. V. R. Hurst)—St. Joseph's Hospital School of Nursing, Fort Worth.

Feeding the Infant During the First Year (Mead Johnson)—Karnes-Wilson Counties Medical Society, Kenedy.

Folvite in Anemia (Lederle Laboratories)—Overall Memorial Hospital Staff, Coleman.

Forty Billion Enemies (Westinghouse Electric and Manufacturing Co.)—Dr. C. W. Evans, Lufkin.

Gastrectomy, Safer (Billy Burke Productions)—University of Houston, Medical Terminology Class, Houston.

Hidden Hunger (Swift & Co.)—Dr. Arch McNeill, Dallas.

Human Fertility (Ortho-Products)—Dr. C. W. Evans, Lufkin.

Hysterectomy (Mead Johnson)—Nelson-Searcy Clinic, McKinney.

Immunization against Infectious Diseases (Lederle Laboratories)—University of Houston School of Nursing, Houston, and Brackenridge Hospital School of Nursing, Austin.

Injuries, Athletic Type (Becton, Dickinson & Co.)—Wharton County Medical Society, Wharton.

Lease on Life (U. S. Public Health Service)—Business and Professional Women's Club, Quanah.

Magic Bullets (U. S. Public Health Service)—Dr. Arch McNeill, Dallas.

Malaria (British Information Services)—Hermann Hospital School of Nursing, Houston.

Modern Nutrition (E. R. Squibb & Son)—Dr. C. W. Evans, Lufkin.

Nasal Sinusitis (E. Fougera & Co.)—Coffey Clinic, Fort Worth; St. Joseph's Hospital School of Nursing, Fort Worth; and Fort Worth Eye, Ear, Nose, and Throat Society, Fort Worth.

Normal Delivery (Mead Johnson)—Kenedy Clinic and Hospital Staff, Kenedy, and Jasper-Newton Counties Medical Society, Jasper.

Oxygen, The Administration by Oro-Pharyngeal Catheter (Mead Johnson)—State Tuberculosis Sanatorium School of Nursing, Sanatorium.

Oxygen Therapy Procedures (Linde Air Products)—Taylor Clinic, Lufkin.

Pneumonia (Mead Johnson)—Karnes-Wilson Counties Medical Society, Kenedy, and Taylor Clinic, Lufkin.

Pregnancy, Multiple (Mead Johnson)—Nelson-Searcy Clinic, McKinney.

Premature Infant (Mead Johnson)—Jasper-Newton Counties Medical Society, Jasper.

Problem Child (Pet Milk Co.)—Woman's Progressive Literary Society, Kenedy.

Spontaneous Delivery (Mead Johnson)—Methodist Hospital School of Nursing, Houston.

Time Is Life (American Cancer Society)—Woman's Progressive Literary Society, Kenedy.

Traitor Within (American Cancer Society)—Business and Professional Women's Club, Quanah.

Trichomonal and Monilial Vaginitis (Searle Co.)—Overall Memorial Hospital Staff, Coleman.

Urologic Conditions, Diagnosis (Winthrop Chemical Co.)—University of Houston, Medical Terminology Class, Houston.

Varicose Veins and Their Complications (Becton, Dickinson & Co.)—Karnes-Wilson Counties Medical Society, Kenedy.

Vitamins and Some Deficiency Diseases (Lederle Laboratories)—State Tuberculosis Sanatorium School of Nursing, Sanatorium.

When Bobby Goes to School (Mead Johnson)—Dr. C. W. Evans, Lufkin.

BOOK NOTICES

[1] More Than Armies

Booth Mooney. With an Introduction by Dr. Morris Fishbein. Cloth, 270 pages. Price, $5. Dallas, Mathis, Van Nort and Company, 1948.

Here is a book, the subject of which is superior to its presentation. While the verbal armor is shining, it is inadequate for the stature of the knight for whom it is designed. The author's best accomplishment is his choice of a title selected from a quotation of Pope,

"A wise physician, skill'd our wounds to heal,
Is more than armies to the public weal,"

for Dr. Cary's life work is an excellent example of this truth.

The author, Booth Mooney, is a native Texan, with ample experience as a newspaper man. He is a public relations counsel and perhaps has written his book more from that viewpoint than from that of a biographer.

The narrative starts with the hero's life on an Alabama farm, and traces the highlights of his career to the present. The picture of Cary, the lonely medical student in New York, is well drawn. The development of his "medical character" and its influence on all he did afterward could here be brought into finer focus. The remainder of the book is largely a history of the development of American medicine, especially its progress in the Southwest.

The impact of Dr. Cary's life on the development of modern medical education is well presented, and his part in the growth of medical and social improvement throughout the country is narrated in a pleasing manner. This biography should be a loose-leaf edition, so that future accomplishments of this great actor on the stage of American life can be affixed, for his works continue and his activities go forward unabated by his added birthdays.

It is a temptation in reviewing this book to include the reviewer's encomium to this great man of medicine. To those who know Dr. Cary this is unnecessary; and to those who do not know him, if there be such, I recommend this book as an introduction to one of America's greatest medical statesmen.

[2] Skeletal Tuberculosis

Vincente Sanchis-Olmos, Assistant Director of the Instituto Nacional de Reeducacion de Invalidos de Carabanchel Bajo (Madrid, Spain); translated from the Spanish by John J. Kuhns, M. D., and a Foreword by Frank R. Ober, M. D. Cloth, 255 pages. Prince, $5. Baltimore, Williams and Wilkins Company, 1948.

This book is divided into two parts. Part I, entitled "General Discussion," is a detailed consideration of the pathology, etiology, clinical symptoms, diagnosis, and prognosis of tuberculosis of bones and joints. The chapters dealing with pathogenesis and pathology are particularly interesting although much of the material is theoretical rather than factual. The author outlines an intricate biologic cycle of skeletal tuberculosis based upon the pathologic and biologic, or allergic, response of the patient to the disease. He attempts to correlate the period of the cycle into which an individual patient falls with the clinical signs and symptoms and with the prognosis. Much of the recommended treatment also depends upon position in this biologic cycle.

Part II, under the title "Special Subjects," deals with pathology, etiology, clinical signs and symptoms, prognosis, and treatment of tuberculosis of specific bones and joints. The material covered under the discussions of treatment is general and in the nature of a summary. Details of surgical procedures are omitted.

This book is interesting and provocative, but it will have its greatest value as a reference. It is supported by wide reference to the literature and by an extensive bibliography.

[3] Eating for Health

Pearl Lewis, Consultant Dietitian. Cloth, 121 pages. Price, $2.25. New York, Macmillan Company, 1948.

This little manual offers the reader a presentation of the relationship of nutrition to health.

The first chapter gives a summary of the evolution of nutritional requirements of man of the past as compared with those of today, and stresses the present trend of consciousness of nutritional deficiencies.

Later chapters deal with the subjects of food; a description of anatomy and physiology of the cells, tissues, organs and systems; and nutritional processes.

There are dietary plans for different age groups, charts for normal weights and heights, and a detailed treatise of all the important foods according to their necessity for storage, their nutritional value, cooking time, and seasonal availability.

This is a handy reference for student, dietitian, or housewife.

[4] Neurosurgical Pathology

I. Mark Scheinker, M. D. Cloth, 355 pages. Price, $8.75. Springfield, Ill., Charles C. Thomas, Publisher, 1948.

In this book on neurosurgical pathology the neurosurgeon and pathologist will find a lucid and concise description of the gross and microscopic appearance of the most frequently observed tumors of the central nervous system. The fundamental characteristic histopathologic features of these tumors as stained with hematoxylin and eosin (eliminating all special staining methods) are given to encourage the neurosurgeon to further his knowledge of neuropathology and to assume more responsibility for the microscopic diagnosis.

The alterations in the central nervous system following trauma are classified upon the evolutional principle in which the lesions are considered as sequential events beginning with functional or reversible changes in contrast to the classification based on a static condition described under such states as concussion, contusion, and laceration. Photomicrographs as well as photographs of the gross specimens are employed to demonstrate these lesions.

The author proposes that the term "cerebral swelling" be used to denote the gross appearance of a brain characterized chiefly by increase in bulk. It is the author's belief that cerebral swelling is represented microscopically by three underlying syndromes: (1) tumefactions, (2) edema, and (3) liquefaction.

Included in this book are chapters on cerebral abscess and hydrocephalus. The paper and print are of high quality and there are 238 illustrations.

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[1] *Elliott Mendenhall, M. D., Dallas.*
[2] *Frederick C. Lowry, M. D., Austin.*
[3] *William H. Teague, M. D., Plainview.*
[4] *A. A. LaLonde, M. D., Austin.*

Organization Section

STATE MEDICAL ASSOCIATION

GUESTS AT THE ANNUAL SESSION

Announcement of the distinguished physicians who will be guest speakers at the annual session of the State Medical Association in San Antonio in May has been made by the Council on Scientific Work, which met in Austin on January 16 to complete plans for the scientific program. These guests, invited by the President upon nomination by the section officers, will speak at general meetings, present papers for the section programs, talk informally at the joint sections meeting, and answer questions at the clinical luncheons, following the pattern which was set some years ago.

Guests who have accepted invitations to participate in the 1949 session are as follows: Drs. John S. Harter, Louisville, Ky., and W. L. Pressly, Due West, S. C., general practice; W. Paul Holbrook, Tucson, Ariz., medicine; S. F. Marshall, Boston, and Carl Moyer, Dallas, surgery; Herbert F. Traut, San Francisco, obstetrics and gynecology; Charles I. Johnson, Boston, eye, ear, nose, and throat; B. R. Kirklin, Rochester, Minn., radiology and physical medicine; Gaylord W. Anderson, Minneapolis, Minn., public health; Lauren V. Ackerman, St. Louis, clinical pathology; and Archibald L. Hoyne, Chicago, pediatrics.

In addition to the speakers named, members of the Association and several invited visitors will present papers of merit on a variety of subjects, the section officers indicated. Most of the sections will provide somewhat more time for discussion than usual, the officers expecting in that way to allow greater participation by all physicians present.

In connection with the consideration of papers for the annual session program, the Council on Scientific Work adopted a resolution, later approved by the Board of Trustees, that such papers should be published in the JOURNAL only if they are of suitable quality. It was pointed out that the Editor of the JOURNAL can release for publication elsewhere those papers not appropriate for use, provided the author requests such release.

The Council on Scientific Work heard a report from Dr. X. R. Hyde, Fort Worth, chairman of the Committee on Scientific Exhibits, suggesting that great interest is being evidenced in the 1949 scientific exhibits and that this part of the annual session will be exceptionally interesting. Applications for exhibit space will be accepted by Dr. Hyde until March 20. Certificates of merit will be awarded for the best scientific exhibit of an individual (including one or more persons) and for the best exhibit of an institution (such as a medical college or a hospital).

Dr. J. L. Cochran, San Antonio, chairman of the Committee on General Arrangements, was also present for part of the meeting upon invitation by the Council on Scientific Work. He reported on the progress which is being made with respect to physical arrangements for the San Antonio session. He pointed out that the local Hotels Committee under the chairmanship of Dr. M. A. Childers is attempting to fill all requests for room accommodations in accordance with the wishes of those asking for reservations. He said, however, that it appears the committee will have to offer substitute accommodations to many visitors, and he urged that requests for reservations be sent to Dr. Childers, Alamo National Bank Building, San Antonio, as soon as possible so that satisfactory arrangements can be worked out for everyone desiring to attend the annual session. Confirmations of reservations are being forwarded as rapidly as requests can be handled.

REPORTS OF OFFICERS AND COMMITTEES

The Constitution and By-Laws of the State Medical Association as revised in April, 1948, provide in chapter 6, section 12 that officers and committees of the Association shall submit written reports to the Secretary sixty days prior to the annual session and that the Secretary shall print and distribute these reports to each delegate thirty days prior to the annual session.

In accordance with these provisions, annual reports this year must be in the hands of the Secretary by March 1 so that they can be printed and distributed by April 1. Officers and committee chairmen responsible for preparing reports have been so advised.

AMERICAN MEDICAL ASSOCIATION

ST. LOUIS INTERIM SESSION

The interim session of the American Medical Association, held in St. Louis, November 30-December 1, was outstanding both from the standpoint of the scientific program and the transactions of the House of Delegates. The meeting was unique in that all sessions and the scientific and technical exhibitions were held under one roof in the St. Louis Municipal Auditorium. As was the case in Cleveland in January, 1948, the scientific program was designed primarily for the interest of general practitioners, and the first action of the House of Delegates after convening was the selection of the recipient of the General Practitioner's Award. This coveted honor was won by Dr. W. L. (Buck) Pressley of Due West, S. C. Another unusual distinction of honor bestowed by the House of Delegates during the session was the awarding for the first time in the history of the American Medical Association of a gold medal and citation to a layman for appreciation of outstanding effort for the public welfare on a national level. This was awarded to the Rev. Alphonse M. Schwitalla, S. J., dean of the Medical School of St. Louis University.

The business of the House of Delegates was begun with the address of the Speaker of the House, Dr. F. F. Borzell, Philadelphia, in which the importance and the seriousness of this session of the House of Delegates was highlighted in the opening remarks as follows:

"Gentlemen, I approach this, the third interim session and my initial session as Speaker, with prayerful contemplation. There have been few, if any, sessions of the House of Delegates as momentous as this one. You will be called on to make decisions that may have far reaching effects on the future of America and especially American medicine. May God give us the wisdom we need to guide us aright.

"You are the legislative body of American medicine. It is your responsibility to determine policies and so direct the affairs of the American Medical Association that the high standards of medicine are perpetuated, sustained progress is insured and the fundamental principles of our profession defended. This session will undoubtedly present problems of major proportions."

One of the matters of great importance to the medical profession of this nation was the series of resolutions submitted by the Reference Committee on Legislation and Public Relations and adopted by the House. These resolutions,

based on a report of the Board of Trustees on the future of medicine in the United States and resolutions of a similar nature submitted by three different states, were as follows:

"*Resolved,* That this House of Delegates instruct the Board of Trustees to implement a 'Statement of Policy' as adopted by the House at this session;

"*Resolved,* That the House of Delegates declare that the Board of Trustees of the American Medical Association has its complete confidence in its intention and ability to carry out the objectives and execute the mandates of the House of Delegates;

"*Resolved,* That the House of Delegates authorize the Board of Trustees to levy an assessment of $25 on the members of the American Medical Association;

"*Resolved,* That this House of Delegates hereby directs the immediate expansion of the Washington Office and its placement directly under the supervision, direction and control of the Board of Trustees;

"*Resolved,* That the immediate employment of suitable public relations counsel to assist in the execution of this program be recommended;

"*Resolved,* That in order to coordinate the activities of the public relations phase of this program at all levels the public relations counsel shall disseminate information to (a) the general public, (b) the Congress of the United States, and (c) state and county medical societies and individual physicians;

"*Resolved,* That it be the unanimous expression of the medical profession as represented by the House of Delegates, that we are firmly united behind the positive and constructive program as outlined by the House of Delegates; that we are confident in the ability of our leadership; that we are determined to protect and foster the high standards of medical care for the public; that we are steadfastly opposed to the regimentation and socialization of American medicine, and that we are confident that an intelligent and informed public will join us in our crusade to ever improve the health and welfare of the American people."

Another action of significance was the passage of a statement of policy of the American Medical Association intended to define clearly for the benefit of both the medical profession and the public the stand of the American Medical Association on a number of points of tremendous importance and interest. This was as follows:

"The American Medical Association reaffirms its belief in the application of the principle of medical care insurance on a voluntary basis. The American Medical Association has encouraged and assisted the development of voluntary prepayment plans. Constantly increasing coverage is being provided throughout the country and protection extended to an ever increasing proportion of our population.

"The American people now enjoy the highest level of health, the finest standards of scientific medical care and the best quality of medical institutions thus far achieved by any major country of the world.

"The great accomplishments of American medicine are the result of development by a free profession working under a free system, unhampered by government control.

"The experience of all countries where government has seized control of medical care has been progressive deterioration of the standards of that care to the serious detriment of the sick and needy.

"The American medical profession is unalterably opposed to the institution of any system of medical care which would result in damage to the American public. Our carefully considered opinion is that any scheme of political medicine would be a catastrophe for the American people.

"Compulsory sickness insurance, notwithstanding misleading bureaucratic propaganda, is a variety of socialized medicine or state medicine and possesses the evils inherent in any politically controlled system. It is contrary to American tradition, and is the first and most dangerous step in the direction of complete state socialism. The American Medical Association rejects any such scheme. We are equally certain that when the people understand the facts they also will reject it with the same finality.

"On the basis of experience, we are convinced that voluntary medical care insurance, with the continued support of the American medical profession, can and will solve the economic problem of the distribution of medical care within the existing framework of private enterprise.

"It has been demonstrated that the voluntary method provides a better and less costly service and avoids the imposition of enormous taxation.

"The continuing purpose and determination of the American Medical Association is to maintain and improve the standards of medical care and to make that care available to all our people."

Several resolutions relating to medical service and prepayment insurance plans were submitted and reported upon by the Reference Committee on Medical Service and Prepayment Insurance Plans. On two of these, advocating the establishment of a Blue Cross-Blue Shield Association, and Blue Cross-Blue Shield Health Service, the report of the committee was unfavorable because of lack of sufficient factual data. In one resolution the Associated Medical Care Plans, Inc., was condemned for some of its actions and it was advocated that the American Medical Association withdraw its approval and support and deny responsibility for any future activities. The Reference Committee recommended that this resolution not be adopted and the House followed the recommendation.

These and other resolutions and actions taken by the House of Delegates will be discussed more fully in future issues of the JOURNAL.

COUNTY SOCIETIES

Anderson-Houston-Leon Counties Society

December 7, 1948

Colon Diseases—John Rowe, Dallas.

Officers for the coming year were elected at the December meeting of the Anderson-Houston-Leon Counties Medical Society in Palestine. Those elected were R. H. Bell, Palestine, president; R. H. Kay, Palestine, vice-president; and Joe Murphy, Palestine, secretary.

A paper on the subject named was presented by John Rowe, Dallas.

Angelina County Society

December 13, 1948

(Reported by W. D. Thames, Jr., Secretary)

New officers of the Angelina County Medical Society were named at a business meeting December 13 in Lufkin at which twenty-one members were present. Jack Wade was elected president; A. E. Percy, vice-president; and W. D. Thames, Jr., secretary-treasurer. L. H. Denman was named censor and T. A. Taylor, delegate, with O. P. Gandy as alternate. All of the officers reside in Lufkin.

Bee-Live Oak-McMullen Counties Society

December 14, 1948

(Reported by D. W. Davis, Secretary)

Socialized Medicine—John Finn, Refugio.

The Bee-Live Oak-McMullen Counties Medical Society met in Beeville on December 14 and elected officers for 1949. E. E. Miller, Beeville, was elected president; Tom B. Reagan, Beeville, vice-president; and D. W. Davis, Three Rivers, secretary-treasurer. Dr. Davis was elected delegate for a term of three years, and E. E. Miller, Beeville, was elected alternate. The board of censors is L. W. Kirkland, Beeville; C. M. Poff, Tuleta; and G. W. Sansom, George West.

John Finn, Refugio, spoke on the subject named, and Walter E. Cox, Beeville, was elected to membership as a transfer from Brazoria County Medical Society.

Brazos-Robertson Counties Society

December 20, 1948

Brazos-Robertson Counties Medical Society met December 20 in Bryan. The meeting was in conjunction with a Christmas dinner at which the society's auxiliary entertained the members. New officers elected were T. A. Searcy, Hearne, president; A. G. McGill, Bryan, vice-president; Charles Cole, Bryan, secretary-treasurer; Richard Grant, Bryan, delegate; and E. E. Holt, College Station, alternate.

Cameron-Willacy Counties Society

December 20, 1948

(Reported by H. L. Scales, Jr., Secretary)

Common Skin Diseases—W. R. Hubler, Corpus Christi.

The members of Cameron-Willacy Counties Medical Society heard W. R. Hubler, Corpus Christi, discuss the topic named above at their December 20 meeting in Raymondville.

New officers who were elected are George E. Bennack, Raymondville, president; F. W. DeStefano, Brownsville, vice-president; C. H. Spence, Raymondville, secretary-treasurer; Troy A. Shafer, Harlingen, delegate; and Phil A. Bleakney, Harlingen, alternate. It was voted that Dr. Bennack be relieved of his duties as censor, and T. A. Kinder, Brownsville, was elected the three-year member of the Board of Censors.

The Christmas season was observed with appropriate music.

Cherokee County Society

December 21, 1948

Low Back Pains—P. M. Girard and A. O. Loiselle, Dallas.

Cherokee County Medical Society was entertained with a buffet supper December 21 at the home of R. T. Travis, Jacksonville. P. M. Girard and A. O. Loiselle, Dallas, discussed the subject named above.

Officers elected were J. L. DuBose, Wells, president; J. T. Boyd, Jacksonville, vice-president; T. H. Cobble, Rusk, secretary-treasurer; C. L. Jackson, Rusk, J. F. Johnson, Rusk, and H. C. McQuaide, Jacksonville, censors; George M. Hilliard, Jacksonville, delegate; and Dr. Cobble, L. L. Travis, Jacksonville, and W. A. McDonald, Alto, alternates.

Collin County Society

December 13, 1948

Otolaryngological Problems in General Practice—D. A. Corgill, Veterans Administration Hospital, McKinney.

Collin County Medical Society met December 13 in McKinney and the program outlined above was presented. Officers elected were F. A. Duncan Alexander, president; Scott Wysong, vice-president; and Charley E. Wysong, secretary-treasurer. All of the officers reside in McKinney.

Cooke County Society

December, 1948

(Reported by William F. Powell, Secretary)

At their December meeting, Cooke County Medical Society members elected the following officers: Rufus C. Whiddon, president; Hiram P. Hawk, vice-president; William F. Powell, secretary; Dr. Whiddon, delegate; Ira L. Thomas, alternate; and James W. Atchison, Dr. Hawk, and Charles K. Mills, censors. All of the officers reside in Gainesville.

El Paso County Society

December 14, 1948

Knee Cap Surgery—W. Compere Basom, El Paso.

Election of officers was held at the December 14 meeting of El Paso County Medical Society. J. Leighton Green was chosen president; Ralph H. Homan, president-elect; M. S. Hart, vice-president; and C. C. Stapp, secretary-treasurer. All of the newly elected officers are residents of El Paso.

W. Compere Basom discussed knee cap surgery.

Galveston County Society

January 5, 1949

Officers were elected by Galveston County Medical Society at its meeting January 5 in Galveston. W. T. Anderson, La Marque, was named president; John J. Delany, vice-president; Edward J. Lefeber, secretary-treasurer; Truman G. Blocker, Jr., delegate; Clarence Quinn, Texas City, alternate; and W. J. Jinkins, Jr., censor. Those not otherwise designated reside in Galveston.

Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Society

December 21, 1948

Urologic Surgery—Sam K. Broyles, Amarillo.

Twenty-nine members of Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Medical Society were present for the December 21 meeting in Borger at which new officers were chosen. Those named include W. W. Brooks, Phillips, president; Charles H. Ashby, Pampa, first vice-president; E. H. Morris, Canadian, second vice-president; Roy Sanford, Perryton, third vice-president; H. L. Wilder, Pampa, secretary-treasurer; and Walter Purviance, Pampa, censor. Harold E. Nicholson, Sr., Wheeler, and W. G. Stephens, Borger, will continue to serve as censors.

A talk on urologic surgery was presented by Sam K. Broyles, Amarillo.

Grayson County Society

December 14, 1948

(Reported by R. W. Duncan, Secretary)

Grayson County Medical Society, meeting December 14 in Denison, elected the following officers: W. I. Southerland, Sherman, president; James E. McFarling, Denison, vice-president; Robert W. Duncan, Denison, secretary-treasurer; E. L. Hailey, Denison, delegate; Arthur Gleckler, Sherman, alternate; and W. D. Blassingame, Denison, censor. The application for membership of Raymond Morphew was accepted and A. M. McElhannon, Sherman, was nominated for honorary membership.

The society voted to approve a mass survey of Grayson County residents by the Texas Tuberculosis Association.

Hardin-Tyler Counties Society

December, 1948

Election of officers was held at the December meeting of the Hardin-Tyler Counties Medical Society and the following members were chosen to serve: Charles Gauntt, Kountze, president; J. C. Miller, Doucette, vice-president; Eugenia Tate Gauntt, Kountze, secretary-treasurer; Watt Barclay, Woodville, delegate; and W. J. Poshataske, Silsbee, alternate.

Hays-Blanco Counties Society

December 16, 1948

(Reported by J. R. DeSteiguer, Secretary)

Officers for Hays-Blanco Counties Medical Society, elected December 16, are as follows: M. D. Heatley, San Marcos, president; J. J. Flannery, Blanco, vice-president; J. R. DeSteiguer, San Marcos, secretary-treasurer; and T. C. McCormick, Jr., Buda; C. W. Scheib, San Marcos; and J. H. Playfair, San Marcos, censors.

Johnson County Society

December 14, 1948

New officers were elected by Johnson County Medical Society on December 14 in Cleburne. They include W. R. Whitehouse, president; O. T. Smyth, Jr., vice-president; Glenn R. Wright, secretary-treasurer; M. T. Knox and Tolbert Yater, censors; and R. W. Kimbro and Dr. Yater, delegates. All of the officers reside in Cleburne.

Kerr-Kendall-Gillespie-Bandera Counties Society

December 13, 1948

Tuberculosis (slides)—Daniel E. Jenkins, Professor of Internal Medicine, Baylor University College of Medicine, Houston.
Human Development (motion picture).

The staff of Legion Hospital were hosts to sixty-four members of Kerr-Kendall-Gillespie-Bandera Counties Medical Society and Auxiliary at a dinner held December 13 at the hospital. Corsages were given to all the women in attendance by the women of Legion.

Daniel E. Jenkins, Houston, discussed the value of proper care in tuberculosis and showed slides to demonstrate the value of this care in the general hospital. He emphasized that proper diagnosis and isolation are necessary to prevent the spread of the disease to patients, hospital personnel, and the public. The motion picture named above was also shown.

Kleberg-Kenedy Counties Society

November 17, 1948

National Physicians Committee and Its Work—Troy Shafer, Harlingen.
Socialized Medicine in England—Mr. Boyd Stewart, Kingsville.

The Kleberg-Kenedy Counties Medical Society met November 17 in Kingsville. Troy Shafer, Harlingen, spoke on the subject named, and Mr. Boyd Stewart of the Department of English, Texas College of Arts and Industries, Kingsville, who recently returned from England, gave a report on the effect of socialized medicine in England.

Navarro County Society

December 17, 1948

(Reported by Paul H. Mitchell, President)

The forty-ninth annual banquet of the Navarro County Medical Society was held December 17 in Corsicana. The program and arrangements were provided by Paul H. Mitchell, Corsicana, who is the new president, and Will Miller, Corsicana, who was master of ceremonies. Other new officers are A. L. Grizzaffi, Frost, vice-president, and Ivan Terry Sanders, Kerens, secretary-treasurer.

Nolan-Fisher-Mitchell Counties Society

(Reported by S. F. Supowit, Secretary)

At a recent meeting of Nolan-Fisher-Mitchell Counties Medical Society the following officers were elected: J. K. Richardson, Sweetwater, president; C. U. Callan, Rotan, vice-president; S. F. Supowit, Sweetwater, secretary-treasurer; R. L. Price, Sweetwater, delegate; T. D. Young, Roscoe, alternate; and C. A. Rosebrough, Sam A. Loeb, and Roland O. Peters, all of Sweetwater, censors.

The proposed national insurance plan and its effect on the public were discussed and open discussion was held concerning assessment for funds with which to stage an educational campaign.

Nueces County Society

December 14, 1948

(Reported by June Yates, Secretary)

Nueces County Medical Society met December 14 in Corpus Christi. Officers elected include L. M. Garrett, president; J. L. Barnard, vice-president; June Yates, secretary-treasurer; J. F. Pilcher, censor; C. P. Yeager and G. T. Moller, delegates; and Dr. Pilcher and Dr. Garrett, alternates. All of the officers elected are residents of Corpus Christi.

Palo Pinto-Parker Counties Society

December 16, 1948

Medical Ethics—R. G. Baker, Fort Worth.

Palo Pinto-Parker Counties Medical Society elected officers at its meeting December 16 in Mineral Wells. Ben L. McCloud, Mineral Wells, was elected president; John B. Merrick, Weatherford, vice-president; W. D. Waldron, Mineral Wells, secretary-treasurer; and James D. McCall, Mineral Wells, delegate; and Dr. McCloud, alternate.

R. G. Baker, Fort Worth, councilor of the Thirteenth District, spoke on the subject named and led a general discussion on the various phases of ethics.

Smith County Society

(Reported by William M. Bailey, Secretary)

Officers who will serve Smith County Medical Society during 1949 are as follows: John H. Mitchell, president; James W. Birdwell, vice-president; William M. Bailey, secretary-treasurer; Thomas M. Jarmon, delegate; Elbert H. Caldwell, alternate; and Mildred Stanley, Carter Anderson, and Jesse Goldfeder, censors. All the new officers reside in Tyler.

Tarrant County Society

December 7, 1948

(Reported by W. P. Higgins, Jr., Secretary)

Meeting December 7 in Fort Worth, Tarrant County Medical Society elected the following officers, all of Fort Worth: Sim Hulsey, president-elect; Haywood Davis, vice-president; W. P. Higgins, Jr., secretary-treasurer; Theron H. Funk, censor; W. B. West and E. P. Hall, Jr., delegates; and M. H. Crabb and J. F. McVeigh, alternates. Bert Ball succeeded to the presidency.

A plan to furnish each member an official Tarrant County Medical Society registered emblem for use on his automobile and to send a list of the names and emblem numbers to the chief of police was approved on motion by John J. Andujar, seconded by Ted Lace.

A letter from Zeta Alpha Alumnae asking for donations of discarded instruments to be sent to Pusan, Korea, was read, and Hobart Deaton spoke favorably regarding this effort.

Reports of officers and committees were presented.

Washington County Society

December 23, 1948

Washington County Medical Society, meeting December 23 in Brenham, elected the following officers for 1949: Clarence W. Schoenvogel, president; Robert A. Hasskarl, vice-president; O. F. Schoenvogel, Sr., secretary-treasurer; Dr. Hasskarl, delegate; and C. E. Southern, Burton, alternate. All of the officers with the exception of Dr. Southern reside in Brenham.

Young-Jack-Archer Counties Society

Young-Jack-Archer Counties Medical Society, meeting in Graham in December, adopted a resolution favoring a state law requiring both the man and the woman to have a blood test in order to secure a marriage license. A resolution urging a tuberculosis survey of school students in the three counties was also passed.

Officers elected were B. B. Griffin, president; Robert E. Lee Gowan, vice-president; and Blaine Divine, secretary. All three officers reside in Graham.

DISTRICT SOCIETIES

Thirteenth District Society

November 11-12, 1948

(Reported by S. W. Wilson, Secretary)

Hypertrophic Pyloric Stenosis—J. C. Allenworth, Mineral Wells.
Discussion—R. J. White, Fort Worth.
Ano Rectal Diseases—O. P. Griffin, Fort Worth.
Discussion—T. W. Hedrick, Abilene.

Surgical Treatment of Colonic Obstruction—W. S. Lorimer, Jr., Fort Worth.
Discussion—T. H. Thomason, Fort Worth.
Nephroptosis—J. E. Smith, Weatherford.
Discussion—J. H. Caton, Eastland.
Management of Ureteral Stones—J. R. Reagan, Wichita Falls.
Discussion—J. A. Crow, Abilene.
Heart Disease Due to Coronary Arteriosclerosis—W. D. Whiting, Wichita Falls.
Evaluation of Coronary Artery Disease—Donald G. Strole, Abilene.

Two half-day sessions comprised the scientific program for the meeting of the Thirteenth District Medical Society, held November 11-12 in Mineral Wells. The program was as outlined above.

Dr. Porter Brown, Fort Worth, was elected president; Dr. T. W. Hedrick, Abilene, vice-president; and Dr. S. W. Wilson, Fort Worth, secretary. Dr. R. G. Baker, Fort Worth, councilor of the district, was nominated to succeed himself; his term of office expires at the 1949 annual session of the State Medical Association.

The society voted to meet only once a year for a one-day program. The next meeting will be held at Mineral Wells, probably the latter part of October or the early part of November.

A discussion of whether or not dues should be assessed brought out the fact that the collection of dues would lower the cost to persons attending the meetings and would stimulate attendance, but the legality of collecting dues was uncertain and was referred to the councilor for submission to the State Medical Association.

A buffet supper with music and with favors for the women was held the evening of November 11.

Auxiliary Section

AUXILIARY NEWS

Angelina County Auxiliary

Plans for distribution of baskets of cheer to the convalescents at the Angelina County Hospital were made at the November meeting of Angelina County Auxiliary, held at the home of Mrs. M. A. Estep, Lufkin. Mesdames L. H. Denman, Estep, and T. A. Taylor were appointed to a committee to carry out the project.

Mrs. J. J. Wheat, Beaumont, reviewed the book "So Dear to My Heart" at the December meeting of Angelina County Auxiliary. The meeting, which was held in the home of Mrs. Robert Taylor, Lufkin, also featured a short talk by Mrs. Edward C. Ferguson, Beaumont, on problems confronting the medical profession. Mrs. Ferguson, past president of the State Auxiliary, reminded the women of the importance of their legislative activity. Mrs. E. T. Tinkle and Mrs. P. C. Clements were co-hostesses for the meeting.—Mrs. T. A. Taylor.

Bell County Auxiliary

A tea honoring Mrs. Samuel M. Hill, Dallas, State Auxiliary President, was held by Bell County Auxiliary in the home of Mrs. A. C. Scott, Jr., Temple, early in January. Mesdames Scott, Hill, G. V. Brindley, Sr., S. F. Harrington of Dallas, R. R. White, V. M. Longmire, and H. B. Anderson received the guests, and Mrs. G. V. Brindley, Jr., presided at the coffee service.

Mrs. R. K. Harlan was in charge of flower arrangements, and Mesdames E. N. Walsh and R. V. Murray served as the refreshment committee. Members of the house party included Mesdames L. R. Talley, Harlan, W. A. Chernosky, Fred Hammond, Murray, Walsh, Bert DeBord, Jr., Jack Christian, and L. M. Cochran.

Approximately sixty guests called.—Mrs. Bert DeBord, Jr.

Bexar County Auxiliary

A Mexican brunch was held January 14 in San Antonio by the Bexar County Auxiliary. A business meeting was presided over by Mrs. B. H. Passmore, president, and Mrs. E. W. Coyle presented a quiz program. Hostesses were Mesdames Belvin Pritchett, S. Foster Moore, Martin Jensen, and J. J. Martinez.

Cass-Marion Counties Auxiliary

The Cass-Marion Counties Auxiliary met with the medical society at dinner in Linden on January 12. During the business session the following officers for the coming year were elected: Mrs. W. S. Terry, Jefferson, president; Mrs. Jesse Brooks, Atlanta, vice-president; Mrs. J. M. DeWare III, Jefferson, secretary-treasurer.—Mrs. J. M. DeWare III, Publicity Chairman.

Dallas County Auxiliary

A luncheon honoring Mrs. Cecil O. Patterson, Dallas, president of the Fourteenth District Auxiliary, and Mrs. Samuel M. Hill, Dallas, President of the State Auxiliary, was held by Dallas County Auxiliary on January 5 in Dallas. Special guests included the presidents of county auxiliaries within the Fourteenth District: Mesdames Vincent C. Cirone, Gainesville; G. F. Goff, Dallas; S. H. Watson, Waxahachie; John M. Hardy, Sherman; P. T. McConnell, Sulphur Springs; Frank Little, Greenville; A. D. Pattillo, Terrell; and J. L. Jopling, Paris.

Dr. Don P. Morris, Dallas, talked on "Present Mental Health Needs." He was introduced by Mrs. J. Forest Buchanan, program chairman for the day.

The Auxiliary contributed $25 to the parentcraft classes at the Dallas Health Museum and agreed to staff booths at two locations during the March of Dimes campaign.—Mrs. Harry B. Sowers, Publicity Chairman.

Liberty-Chambers Counties Auxiliary

The annual business meeting of Liberty-Chambers Counties Auxiliary was held January 13 at Liberty with Mrs. T. L. Fahring, president, presiding. The following officers were elected: Mesdames D. P. Schultz, Liberty, president; Reginald Wilson, Dayton, vice-president; A. L. Delaney, Liberty, secretary-treasurer; and C. W. Castle, Anahuac, parliamentarian.—Mrs. D. H. Davies, Secretary.

Wichita County Auxiliary

Because of a severe ice storm which made travel precarious, the January meeting of the Wichita County Auxiliary was canceled. Election of officers, scheduled for the January session was postponed until the meeting February 8.—Mrs. Joseph G. Pasternack, Publicity Chairman.

Twelfth District Auxiliary

Twenty-nine members of the Twelfth District Auxiliary were present at a meeting January 11 at McCloskey Hos-

pital, Temple. Preceding the business session, a coffee was held, with Mrs. G. V. Brindley, Jr., Temple, at the coffee service.

Mrs. Samuel M. Hill, Dallas, president of the State Auxiliary, was introduced by Mrs. G. V. Brindley, Sr., Temple, and spoke on the need for organizing auxiliaries in each county, compulsory health insurance, nurse recruitment, and the importance of *Hygeia* sales. Representatives of most of the counties in the Twelfth District gave reports and Mrs. Brindley gave an account of the work done in public relations.

Mrs. J. C. Terrell, Stephenville, was elected president for the ensuing year; Mrs. J. E. Talley, Waco, was named vice-president; Mrs. Henry Harrison, Bryan, secretary; and Mrs. F. Paul Barrow, Killeen, reporter.

Mrs. Charles Phillips, Temple, gave the invocation for the meeting, and Mrs. R. R. White, Temple, district president, presented corsages to Mrs. Hill; Mrs. S. F. Harrington, Dallas; Mrs. Brindley, Sr., past president of the State Auxiliary; and Mrs. V. M. Longmire, Temple, state treasurer. Mrs. R. D. Moreton, Temple, violinist, accompanied by Mrs. Robert Marshall, presented several musical selections.

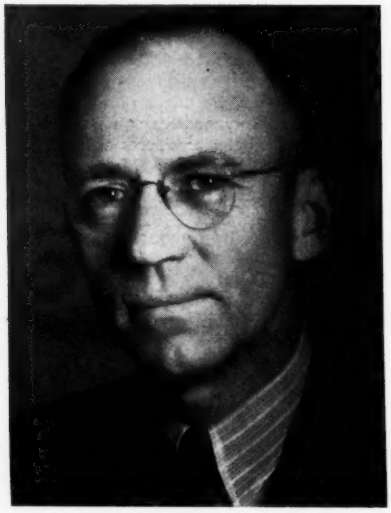
At noon the auxiliary joined members of the district medical society for luncheon.—Mrs. Bert DeBord, Jr.

Deaths

O. T. KIMBROUGH

Dr. Orman Trimble (Josh) Kimbrough, Wichita Falls, Texas, died in his sleep December 15, 1948, at his fishing cabin at Fox Hollow on Possum Kingdom Lake. For a number of years he had suffered from hypertensive cardiovascular disease.

The son of Dr. George R. and Annie (Trimble) Kimbrough, Dr. Kimbrough was born October 26, 1893, at Emory, Texas, but moved in 1909 to Peniel, where he attended Peniel College. He was graduated from the University of Texas, Austin, and from the Medical Department of the University of Texas, Galveston, in 1919. After serving an internship at Harris Hospital, Fort Worth, he practiced for a few months at Katy and then moved to Burkburnett. In 1926 he did postgraduate study in urology at Columbia University, New York and returned to Texas to practice that specialty in Wichita Falls.



DR. O. T. KIMBROUGH

Since 1922 Dr. Kimbrough had been a member of Wichita County Medical Society, the State Medical Association, and the American Medical Association. He was also a member of the Thirteenth District Medical Society, and had held several offices, including the presidency in both the county and district societies. He was a member of the American Urological Association, South Central Branch, and of Phi Chi medical fraternity. He had been city health officer and president of the Wichita County Tuberculosis Society, and was for a number of years a federal physician. He had been honorably discharged from the Army Medical Corps Reserve. Recently he had been active in efforts to secure an adequate hospital for the Wichita Falls area. Dr. Kimbrough had been president of the Rotary Club in both Burkburnett and Wichita Falls and was exceedingly active in that organization. He was director, vice-president, and member of the board of the Wichita Falls Chamber of Commerce; director of the old Open Forum; president of the Community Chest board; member of the athletic committee of Wichita Falls High School, serving also as physician for the athletic teams; member of the Masonic Order, Scottish Rite, and Shrine; and a founder and first president of the Northwest Texas Field and Stream Association. He was a life-long Democrat and Methodist, and could quote scripture fluently.

Interested in most of the civic projects of his community, Dr. Kimbrough was especially active in Boys Club work. He organized the club in Wichita Falls in 1929 and encouraged its development to the present membership of more than 2,500 with a physical plant which has been a model for similar projects throughout the country. Construction of the Josh Kimbrough Swimming Pool, which he planned, will be started soon as a memorial to him. He was chairman of the board and president of the Wichita Falls Boys Club and since 1940 had been a member of the board of directors of Boys Clubs of America.

On five occasions Dr. Kimbrough received awards for outstanding community service. In 1939 the Advertising Club of Wichita Falls presented him with a cup for being the most useful citizen. In 1941 he was given an orchid for good citizenship. In 1946 a trophy and plaque for conspicuous community service and assistance to veterans were awarded him by the Frederick Sehmann Chapter No. 21, of Disabled American Veterans. In 1947 the Wichita County Medical Society presented him its outstanding service award for his work with boys, leadership among docors, and devotion to civic projects. In 1948 the national awards committee of Boys Clubs of America presented him the Boys Club Silver Keystone in recognition of his outstanding service.

Dr. Kimbrough married Miss Thelma Cunningham in Drumright, Okla., on October 7, 1920. He is survived by

his wife; a daughter, Mrs. Jack Franklin Helmcamp; his mother, Mrs. George R. Kimbrough; and two grandchildren, all of Wichita Falls. An infant daughter preceded him in death in 1921.

OSCAR SMITH

Dr. Oscar Smith, Greenville, Texas, died October 9, 1948, in a local hospital.

Born February 27, 1855, in Corinth, Miss., Dr. Smith was the son of William A. and Balzora (Manesse) Smith. He was graduated from the Missouri Medical College, St. Louis, in 1884, and studied at the New York Polyclinic, New York. Dr. Smith began his practice at Cumby, Texas, where he was active most of his professional life. He moved to Greenville in 1922.

Dr. Smith was a member for many years of the American Medical Association and the State Medical Association, first through Hopkins-Franklin Counties Medical Society and

DR. OSCAR SMITH

most recently through Hunt-Rockwall-Rains Counties Medical Society. He was elected an honorary member of the State Medical Association in 1931. He had been a member of the Masonic Lodge.

On June 21, 1885, Dr. Smith married Miss Minnie E. Dickson at Cumby. She died February 22, 1923. Survivors include a daughter, Mrs. G. S. Berry, Greenville; a son, M. Dixon Smith, Dallas; three grandchildren, Mrs. C. G. Allen, Greenville; Mrs. William E. Morris, Dallas; and Edwin Smith, Los Angeles, Calif.; and three great-grandchildren.

DUANE MEREDITH

Dr. Duane Meredith, Wichita Falls, Texas, died November 30, 1948, at an Olney hospital of acute yellow atrophy of the liver.

The son of Elisha and Mary Browning (Duncan) Meredith, Dr. Meredith was born March 3, 1881, near Rice, Navarro County, Texas. He attended schools in Archer County, Wichita Falls High School, and the old Fort Worth University. He became a licensed pharmacist, and in 1905 he passed the State Medical Board examination. Dr. Meredith began his practice at Petrolia and then moved to Dundee where he practiced until 1908, at which time he returned to Fort Worth. While completing the work for his degree in medicine in the Medical Department of Fort Worth University, he served one year as assistant professor of pathology and chemistry. Immediately following his graduation in 1910 he began practice in Wichita Falls, and, except for two years when he taught pathology and chemistry at Texas Christian University in Fort Worth, he maintained a general practice there, with special emphasis on the treatment of cancer, tuberculosis, and skin diseases. For two years during World War I he was in charge of the roentgen-ray department of Wichita General Hospital. He had also served as local surgeon of the Wichita Valley Railroad.

Dr. Meredith was a member for thirty-five years of the American Medical Association and the State Medical Association, first through Archer County Medical Society and then through Wichita County Medical Society. He was secretary of Wichita County Medical Society from 1910 to 1912. He was a member of the Blue Lodge of the Masons, the Maccabees, the Eastern Star, the Chamber of Commerce, and a deacon in the Southern Presbyterian Church.

On December 7, 1905, at Wichita Falls, Dr. Meredith married Miss Amelia Kerr, who survives. Also surviving are five sons; two, Dr. E. F. Meredith, Olney, and Dr. Duane W. Meredith, Dumas, are doctors of medicine, and two others, Phillip Kerr and Frank Kerr Meredith, are twins and are premedical students. J. R. Meredith, the fifth son, lives in Wichita Falls. Other survivors are two daughters, Mrs. Irvin J. Vogel and Mrs. Layton Downing, Wichita Falls; four brothers including John Dewitt Meredith, his twin brother, Moran; D. F. Meredith and William Meredith, Chloride, Ariz.; and Olen Meredith, Kingman, Ariz.; and eleven grandchildren.

F. T. ISBELL

Dr. Francis Taylor Isbell, Eastland, Texas, died December 26, 1948, of carcinoma of the sigmoid colon and pulmonary embolism.

Born April 17, 1875, on a plantation near Gainesville, Sumpter County, Ala., Dr. Isbell was the son of Capt.

DR. F. T. ISBELL

James B. and Harriet (Eddins) Isbell. He received his early education in the public schools of Arkansas and was graduated from the Memphis Hospital Medical College, Memphis, Tenn., in 1901. Following his graduation he engaged in general practice in Horatio, Ark., until 1920. Dur-

ing these years he was active in the local and state medical societies, holding office in both. From 1912 to 1918 he served on the Arkansas State Board of Medical Examiners and from 1916 to 1918 was president of the board. In 1920 Dr. Isbell moved to Eastland and in 1924 resumed the general practice of medicine..

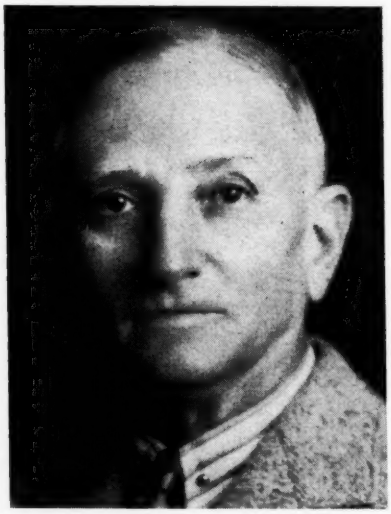
Throughout his professional career in Texas, Dr. Isbell was a member of the State Medical Association and American Medical Association through Eastland-Callahan Counties Medical Society, of which he was president in 1934. He was also a member of the Eastland City Medical Society. He served twenty years as Eastland County health officer and sixteen years as a member of the board of the Ranger General Hospital (formerly City-County Hospital), Ranger. He was a member of the Baptist Church and the Masonic Lodge.

Dr. Isbell married Miss Celeste Matthews, Horatio, Ark., on December 21, 1904. He is survived by his wife; two sons, Dr. Harris Isbell, Lexington, Ky., and James B. Isbell, Richmond, Va.; and a daughter, Mrs. Elizabeth Vaught, Eastland.

C. P. BROWN

Dr. Charles Percy Brown, El Paso, Texas, died at his home November 20, 1948, of hardening of the arteries.

The son of M. V. and Sarah Brown, Dr. Brown was born January 4, 1875, in Charleston, Ill. He moved with his family to Missouri and then to Centerville, Iowa, where he received his early education. He was graduated from



DR. C. P. BROWN

Drake University, Des Moines, and then in 1902 from Rush Medical College of the University of Chicago. That same year Dr. Brown began his practice in Bisbee, Ariz., moving soon afterward to El Paso where he practiced until his retirement in 1947. For several years he was surgeon for the El Paso and Southwestern Railroad. In El Paso he was associated with his brother, Dr. W. L. Brown, and both were especially interested in bone and joint disorders. At the time of his death Dr. Brown was doing charity work at the San Jose Clinic.

During forty years of practice in Texas Dr. Brown was a member of the American Medical Association, State Medical Association, and the El Paso County Medical Society. He was elected to honorary membership in the State Medical Association in 1948. Dr. Brown and his brother aided in the organization of the Southwestern Medical Association, and Dr. Brown was its secretary for two years. He had served as a captain in the Army Medical Corps in World War I, and he was a member of the First Presbyterian Church.

In 1914 in El Paso Dr. Brown married Miss Elizabeth Howell, who survives.

G. MASON GRAHAM

Dr. G. Mason Graham died at his home in Bessmay, Texas, December 22, 1948, of carcinoma of the spine.

The son of Duncan John and Florestine (Archinard) Graham, Dr. Graham was born January 2, 1880, in Alexandria, La. He attended Springhill College, Mobile, Ala., and Louisiana State University, Baton Rouge, and was graduated in medicine from Kentucky University, Louisville, in 1903. Dr. Graham practiced in Woodworth and Gueydan, La., before coming to Texas, where he had been associated with the Kirby Lumber Corporation as physician for its hospital association the past twenty years, the last eight years in Bessmay. He was health officer for Jasper County.

In 1934 and again since 1942 Dr. Graham had been a member of the State Medical Association and American Medical Association. He was a member of Jasper-Newton Counties Medical Society and was secretary of that organiza-

DR. G. MASON GRAHAM

tion in 1946. He was a medical examiner for Selective Service and worked with a venereal disease clinic. He was a member of the Catholic Church, the Kirbyville Lions Club, and Sigma Alpha Epsilon fraternity. He was an honorary citizen of Boys Town, Neb., and active in Boy Scout work.

Surviving Dr. Graham are his wife, the former Miss Aimee Texada, whom he married February 14, 1912, in Alexandria, La.; two sons, Chief Warrant Officer G. M. Graham, with the Army Air Force in Germany, and Lewis T. Graham, Ph.D., Lafayette, La.; and two daughters, Miss Constance Graham, Beaumont, and Mrs. W. G. Lindsay, Lake Charles, La.